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ADULT STUDENTS' PERCEPTION OF THE CONGRUENCE OF HYBRID
COURSES WITH THEIR ADULT LEARNING NEEDS AND THEIR SATISFACTION
FROM HYBRID COURSES

A Dissertation

Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for
the degree of Doctor of Education

By

Rubina Iqbal

December 2011

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Rubina Iqbal

2011

DUQUESNE UNIVERSITY
SCHOOL OF EDUCATION

Dissertation

Submitted in Partial Fulfillment of the Requirements
For the Degree of Doctor of Education (Ed.D.)

EdDIT Doctoral Program

Presented by:

Rubina Iqbal

M.A. Multimedia Technologies

June 16, 2011

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COURSES WITH THEIR ADULT LEARNING NEEDS AND THEIR SATISFACTION
FROM HYBRID COURSES

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ABSTRACT

ADULT STUDENTS' PERCEPTION OF THE CONGRUENCE OF HYBRID COURSES WITH THEIR ADULT LEARNING NEEDS AND THEIR SATSFACTION FROM HYBRID COURSES

By

Rubina Iqbal

December 2011

Dissertation supervised by: Dr. Gibbs Y. Kanyongo

The overall purpose of the study was to examine adult students' perception of the congruence of hybrid courses with adult learning needs and to examine adult students' level of satisfaction with hybrid courses. The study collected data through pre and post surveys, administered at the beginning and near the end of the hybrid courses, of adult students' perceptions. The pre survey questionnaire sought quantitative responses only. The post survey sought quantitative and qualitative responses. The quantitative data was analyzed by utilizing the Statistical Package for Social Sciences (SPSS).

Existing research on learning theories and learning styles, particularly that based on the educational psychology of cognitive-constructivism, provided the theoretical foundations for this study. The four adult learning needs of autonomy, self-directedness, relevancy-orientedness, and goal-orientedness, upon which this study focused, were

derived from Knowles' theory of andragogy (1984), which closely relates to the constructivist learning theory, itself a derivative of cognitive-constructivism. The overall goal of this examination was to address the paucity of research on the effectiveness of technology-enhanced teaching formats in higher education, specifically on the relationship between constructivism, andragogy, and hybrid courses.

The analysis of descriptive statistics and paired samples *t*-test indicated that students perceived the hybrid course to be highly congruent with their adult learning needs and that they were greatly satisfied with the course. The differences in students' perceptions from the pre to the post surveys were found not to be statistically significant. Remarkably, although students' perception of congruence of the hybrid course with the four adult learning needs was negligibly less positive in the post survey than in the pre survey, their overall satisfaction with the course was higher in the post survey than in the pre survey.

For educational institutions teaching adult students, the study provided insights for improving courses and for the possibility of innovation in teaching adult students. It recommended that educational institutions accommodate the learning needs of people of all different ages and backgrounds by incorporating constructivist practices in teaching methods, particularly when adults are expected to enroll, including in hybrid courses.

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educational systems and gave me insights. It was this gradual thought-acquisition and thought-building that stirred questions in my mind and led me to choose the exploratory topic for this dissertation. In that connection, I would like to express my special thanks to Dr. Linda Wojnar, who is currently not with the Duquesne University EdDIT Program any more, but while she was there, I regarded her as my teacher and a mentor. I thank Dr. Carbonara, Assistant Professor and Director of Instructional Technology, who led insightful classes with thoughtful choice of teaching material, becoming for me a model teacher. And, of course, I cannot forget the timely help provided to me by Dr. Heo Misook, Assistant Professor at the Department of Instruction and Leadership in Education, when I had questions and concerns regarding my dissertation. I am also indebted to the help that Dr. Maria Kish provided me along the way. Among staff, I am grateful above all for all the prompt and thoughtful help and support that Ms. Glory Smith and Ms. Linda Bruno provided throughout my association with the program. I admire their professionalism and friendliness which eased several difficulties.

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particularly when my father passed away and when I got seriously ill. I thank my family and friends for their long-term support and patience.

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CHAPTER I: INTRODUCTION

Introduction

Today, instructional technologies have evolved to the point where they have come to be seen not merely as a fast information delivery method, but as the much-awaited solution to the problem of educational deficiencies in the society. With the growing realization that these sophisticated technologies have a vast potential, discovered and undiscovered, their use for education and training purposes has now gained prevalence (Potashnik & Capper, 1998, p. 42). From classrooms equipped with state-of-the-art technologies, to the spawning of academic programs that are partly or fully online, to the utilization of computer-based teaching and training in workplaces, instructional technologies appear to be ubiquitous. Forward-looking educational institutions and corporate workplaces heed to the latest developments in instructional technologies (Jones, 2004).

This modernity trend in education, which began with the utilization of technologies for their aesthetically-pleasing features, convenience, and speed of delivery, has now moved on to the stage where educators and researchers are engaging themselves in thoughtful exploration and application of instructional technology strategies, to be applied to curriculum design and pedagogical methods, with the objective to improve educational outcomes (Brunnemer, 2002). The literature reviewed indicated that with the increased knowledge of learning theories derived from educational psychology, a greater understanding of learning styles, and advancements in the science of human development, educators' focus has sharpened on the development of learners' intelligence and knowledge--beyond mere comprehension and retention of the instructional content.

Now the general consensus is that the objective of improving education is best attainable when students are provided with an appropriate learning environment and that instructional technologies and methods suit the needs of this objective more than the traditional classroom methods (Maddux, Johnson, & Willis, 1997, pp.73-74).

Background

With this objective in mind, and under a steadily increasing demand to meet the educational needs of nontraditional adult students, educational institutions in the last few years have sought to equip their classrooms with a variety of technologies and provide technology-based education programs (Brunnemer, 2002). It was due to this proliferation of technology-enhanced educational programs that the International Data Corporation predicted that, by 2005, 90 percent of all higher education institutions will have some kind of electronic learning courses (Martyn, 2003, p.18). As the diversity of teaching techniques proliferates, classes are offered to students in formats labeled as fully online, web-enhanced, and hybrid, lending weight to the evidence that educational institutions are utilizing technologically advanced methods to reach increasingly diverse student populations (Olson, 2003, p.1). The concern remains, however, whether the various online delivery methods constitute the most effective use of instructional technologies in view of the educational objectives to be attained.

Recent educationists have sought to understand the role of methods of teaching in achieving learning objectives. Merrill (2002), for instance, concluded in his research report entitled “First Principles of Instruction” that failure to implement the first principles in instructional programs and practices will cause a decrement in learning (p. 50). Merrill defines “first principle” as the basic methods of teaching, including

programs and practices. Maintaining that there are a few first principles of instruction, he points out that each has its own programs and practices, such as activities, design practices, models, and methods (p.44).

First, learning from a given program will be facilitated in direct proportion to its implementation of first principles. Second, first principles of instruction can be implemented in any delivery system or using any instructional architecture? Third, first principles of instruction are design oriented rather than learning oriented. They relate to creating learning environments and products rather than describing how learners acquire knowledge and skill from these environments or products. (Merrill, 2002, p.43)

In other words, according to Merrill's research, instruction that incorporates an appropriate method of teaching enhances learning. With this knowledge, further questions arise as to what strategies are most effective for delivering instruction. At present, the situation is that traditional learning and teaching methods have been extensively studied, but research on technology- enhanced course delivery methods, including hybrid teaching, is limited (Farahani, 2003, p.1).

This study recognized the fact that the use of technology in education today has revolutionized teaching and learning processes by providing multiple methods of instructional delivery. Concurrently, increased understanding of human learning process through advancements in science of psychology and its derivative theories of learning, which emphasize individual differences in learning, has led educators to examine critically the traditional methods of teaching and learning and to appreciate technology's

potential to achieve a better fit between teaching and learning styles. Thus, educators are eager to find uses of technology-enhanced course delivery techniques that help in designing learning environments that optimize the learning potential of all students by accommodating individual learning styles. The use of hybrid course delivery technique is one of the educational technology-based strategies whose objective is to achieve better educational results than afforded by the traditional educational system by creating flexible learning environments and empowering learners to meaningfully contribute to the process of acquisition of knowledge relevant to their lives. Since universities of today aim at targeting non-traditional adult students to increase their enrollment, such students' perception of hybrid model's congruence with their learning needs and learning styles is an important piece of information for the university administrators.

This study sought to explore whether students perceive that hybrid courses meet their learning needs for autonomy, self-directedness, relevancy-orientedness, and goal-orientedness. Another, broader objective of the study was to learn whether the hybrid course model satisfies adult students.

For the purposes of this study, the term "adult learner" was identified as per Knowles' findings. Knowles' criteria to regard someone as an adult, according to Wlodkowski (1993), is that the individual performs roles associated by our culture with adults—i.e. he or she is a worker, spouse, parent, soldier, responsible citizen--and he or she perceives himself or herself to be responsible for his or her own life (p. 5).

Problem Statement

Although limited research is available to indicate students' preference for hybrid courses over fully face-to-face or fully online courses or their perception of hybrid

courses, there remains a gap in research to determine whether students perceive that this pedagogical strategy corresponds to their adult learning needs and thereby enhances their satisfaction from learning. As the literature review in Chapter II indicates, adult learning needs are infused with the principles of constructivist learning theory. In other words, andragogy, that is, adult learning, is congruent with constructivist learning styles. Also, as the survey of existing literature indicates, with greater theoretical knowledge in the area of learning styles and the advancement of instructional technologies have greatly advanced, educationists today are concerned with improving adult learning so as to promote higher order thinking among adults. Their concern and efforts make it reasonable to expect that the pedagogical approaches driven by the new instructional technologies employed in the design and delivery of courses support adult learning styles. There is, however, paucity of research to indicate whether such is in fact the case.

To the best of the researcher's knowledge, no study has been conducted that seeks to understand the interconnectedness between constructivism, andragogy, and satisfaction from learning by adults through hybrid courses. While some studies have been conducted that sought to understand the perceptions of students, both traditional and non-traditional, toward hybrid courses, and while there have been some limited studies that determined students' satisfaction with hybrid courses, no study has been conducted to understand whether adult students are satisfied with the learning processes in hybrid courses and whether those learning processes support constructivist theories that form the bases of andragogy.

Significance of the Study

Educational scholars believe that hybrid courses offer a number of advantages to students over fully online and fully face-to-face courses (Olson, 2003, p. 3). Martyn (2003), for instance, points out that the strength of the hybrid online model lies in the fact that it combines the best characteristics of online education and the interactivity of face-to-face classroom instruction (p.18). Tuckman (2002), similarly, concluded from his evaluative study of a skills-teaching hybrid course that the structure and discipline provided by classroom meetings, combined with the opportunities for practice, assessment, and feedback, improved students' learning by helping them manage their time and remain on task (p. 261). Limited research exists to lend support to the idea that students perceive such courses favorably because they provide increased interaction with other students and the teacher, permit students to complete their work at their own convenience, and limit the amount of time during which students are required to be physically present in the classroom (Olson, 2003, p. viii). There is, however, paucity of research to determine conclusively the effectiveness of technology-enhanced courses in delivering instruction (McWilliams, 2001, p.5).

The literature review revealed a similar paucity of research in determining whether courses that account for individual students' learning styles enhance learning and whether such courses enhance adult students' satisfaction from the learning process. However, in accordance with the current learning theories, it could be reasonably surmised and expected that such might be the case. In accordance with learning theories, as has been shown in greater detail through literature review, learning processes improve when learners learn through methods that match their intrinsic learning styles and adult

learners learn well when the process of learning provides them with autonomy, self-directedness, relevancy-orientedness, and goal-orientedness. This non-experimental study, based on one sample, sought to understand whether adult students perceive that hybrid courses are responsive to their needs and whether adult students are satisfied with hybrid courses.

In attempting to meet the recent increased demand by the new information technology-driven workplace that working adults learn a broader than ever variety of skills, educational institutions have come to the realization that adult students require individualized curriculum to fit their career goals (Brunnemer, 2002). The outcome of this study helped understand whether adult students perceive that hybrid courses deliver learning environments that support personalization of learning by allowing learners to incorporate their experiences and needs; in other words, the study sought to ascertain adult students' perception of the potential of hybrid courses to support personalization aspect of the constructivist learning theory and of the theory of andragogy.

The results of this study will provide a model for future studies and guidance for future innovations in educational delivery methods and adult literacy instruction. The findings will be beneficial to universities that offer hybrid courses by providing feedback to educators as to adult students' perception regarding hybrid courses.

Research Purpose

Purpose Statement

The overall purpose of the study was to examine whether adult students perceive that hybrid courses correspond to their adult learning needs and whether such courses satisfied adult students by supporting their adult learning needs. More specifically, the

study sought (1) to determine whether students perceive that hybrid courses support their needs for autonomy, self-directedness, goal-orientedness, and relevancy-orientedness in learning, and (2) to determine whether adult students felt satisfied with hybrid courses.

Research Questions

Based on the review of literature and the number of questions raised, the following two research questions were addressed in the study:

1. Do adult students perceive that hybrid courses are responsive to their needs for autonomy, self-directedness, relevancy-orientedness, and goal-orientedness in learning by incorporating adult learning styles in the course design?
2. Do adult students feel satisfied with hybrid courses?

Research Hypotheses

The study tested two hypotheses:

First Research Hypothesis

Adult students' perceive that hybrid courses correspond to their needs for autonomy, self-directedness, relevancy-orientedness, and goal-orientedness.

Second Research Hypothesis

Adult students feel satisfied with hybrid courses.

Specific Considerations

In proposing this study, the researcher realized that several factors have the potential to influence the results of the study. The researcher identified and recognized the following assumptions that were made in conducting the research.

1. The participants answered the questionnaires honestly and to the best of their ability.

2. The participants had a predominant learning style, which was the learning style of adults, as identified by Knowles in his theory of andragogy.

Limitations and Delimitations of the Study

This was a limited one time study, with the study period restricted to available courses during a limited number of semesters in a few universities within a small geographical area. The researcher remained open to the idea of extending the study to as many courses as she was able to gain access to within the time period allotted for the research and in the selected universities.

The student population was the accessible population in the available hybrid courses. The fact that students chose the hybrid course were assumed to be indicative of a type of students with certain needs: students enrolled in hybrid courses were assumed for the purposes of this study to be working adults, some of them might have small children toward whom they had parental responsibility and who needed a flexible learning environment. Since the students enrolled in such courses were assumed to be adults with multiple employment and home responsibilities, a small dropout rate was presumed. Gaps in the final data were expected to exist if students dropped out from the courses chosen for this research, and it is often not possible to reach those students to find out whether they dropped out because the hybrid class did not suit their purpose or whether there was some other reason for their dropping out.

The students' articulated responses as to their perceptions of the congruence between the hybrid course and their adult learning needs were accepted. The questionnaire formulated questions based on the catalog provided by Knowles of adult

learning needs, accepting it as expressive of adult learning styles and without attempting any alterations.

Definitions of Terms

Adult learners: Knowles' criteria to regard someone as an adult, according to

Wlodkowski (1993), is that the individual performs roles associated by our culture with adults—i.e. he or she is a worker, spouse, parent, soldier, responsible citizen—and he or she perceives himself or herself to be responsible for his or her own life (p. 5).

Andragogy: The term, in general, denotes “education and learning of adults,” although in scholarly literature it may be used to designate different strategies and methods used in helping adults learn, theories that guide the scope of research in and practice of adult learning, or a scientific discipline concerned with the dimensions and processes of adults' acquisition of full human potential (Cooper & Henschke, 2004; Gent, 1996).

Constructivism: The term stands for the learning that “occurs most effectively when the individual actively processes the information in a way that is meaningful to him/her, and not simply and passively incorporates information unchanged from its original form” (Carlson, 2003).

Fully online course: Interactions among students and those between students and the teacher take place entirely in an online environment. All the course content is delivered through the Internet and Web. This course delivery format does not require that students and teacher meet in a physical classroom although they may meet in a virtual chat room.

Fully face-to-face course: This is a traditional course in which students and the teacher meet at specified times in a classroom. Most course content and communication takes place during face-to-face meetings, although some communication and materials may be exchanged electronically. Students complete their homework outside the classroom and submit it to the teacher in the classroom in accordance with specified deadlines.

Hybrid course: Students and the teacher meet in the classroom at specified times and location for part of the course work. The remaining course content is delivered online. Thus, in a hybrid course, students' interactions among themselves and with the teacher take place both in the traditional classroom and online through the course web site.

Hybrid teaching and learning: This is the teaching and learning mode in which “teachers combine the distributed teaching and learning of distance education with the comfortable interaction of the classroom in an effort to achieve a synthesis of the two” (Sands, 2002).

Instructional Technology: This is technology that enables the systematic practice of designing, carrying out, and evaluating the total learning process, employing a combination of human and non-human resources to bring about more effective instruction (McWilliams, 2001).

Learning Styles: These are “characteristic cognitive, affective, and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment” (Keefe, 1979, cited in Felder and Brent, 2005). Cauduro (2004) maintains that learning style, a method

in which learners concentrate, process, and retain new and difficult information, is a combination of biological and developmental characteristics that help in determining whether or not a style of interaction will be effective for a particular learner.

Organization of the Study

Chapter I is an introductory chapter. It comprises the introduction, background of the problem, problem statement, significance of the study, purpose statement, research questions, research hypotheses, specific considerations, limitations, delimitations, and organization of the study.

Chapter II provides a review of literature to establish a foundation for the research. The review focused on those aspects of the literature that relate to learning theories, learning styles, and their pertinence to technology education in general. These elements have been discussed as ways to understanding the modern emphasis on learning, which has now come to mean the development of intellect that extends beyond mere acquisition of information imparted by the teacher. The review subsequently discusses adult learners' educational needs in the light of a number of current theories. This discussion establishes constructivism as the theory most relevant to understanding adult learning styles. The discussion of adult learning styles pays close attention to the ideas advanced by Knowles' theory of andragogy. The review of literature was conducted with the intent to frame the implication of the results that the empirical research was to yield and to support the discussions for each research question in the final chapter of the dissertation.

Chapter III describes the design and methods that were used in this study. Specific sections are presented in this chapter on research design, research method, research variables, design and selection of measurements, research population and subjects, data gathering procedures, and statistical analysis.

Chapter IV presents results of the study. The results are the findings from the examination of adult students' perception of the congruence between hybrid course delivery mode and their adult learning needs and from the examination of the level of adult students' satisfaction from hybrid courses. The chapter presents a general description of the participants and then elaborates on the findings for each research question, arrived at both quantitatively and qualitatively. The chapter includes also a review of the survey design, procedure, and response rate; a review of the data screening methods; the specific questions for which the study sought the answers; research hypotheses; relationships among variables; analysis of the data for each hypothesis; and responses to the qualitative questions, specifically related to the satisfaction level of the students with the course.

Chapter V presents a discussion of the study. It begins with a summary of the study, which examined the congruence of hybrid courses with adult learning needs, specifically with the adult learning needs for autonomy, self-directedness, relevancy, and goal-orientedness in the course design, and which also examined the level of adult students' satisfaction with hybrid courses. It is a summary of the theoretical foundations of the study, the research methodology employed in the empirical study, and the research results based on the quantitative and qualitative analysis performed. The intent in this chapter is to advance a general discussion of hybrid courses as an educational course

delivery tool and of the educational benefits of utilizing this tool for making learning satisfactory to adult learners. Finally, the chapter provides recommendations for further research and implications for action.

CHAPTER II: LITERATURE REVIEW

Introduction

The purpose of this literature review is to study the theoretical foundations underlying the expectation that the use of hybrid courses as a pedagogical approach to reach adult student populations offers possibilities for greater satisfaction from learning by adult students. The exploration of relevant secondary bibliographic sources in this regard is undertaken in a generalized way, with the concurrent realization of the fact that particularities in learning situations widely differ, invalidating any attempt to typify findings as universally true or literally applicable.

The literature review begins with broad examination of some major theories of learning. Of the learning theories originating from three main schools of thought in educational psychology-- behaviorism, cognitivism, and humanism—the focus is on those representing cognitivism. This review of learning theories is followed by an exploration of bibliographic sources pertaining to various teaching and learning styles, with the aim to comprehend their pertinence to technology education in general. In this connection, Bloom's taxonomy and Howard Gardner's theory of Multiple Intelligences are discussed as ways to understanding the modern focus on learning, which has now come to mean the development of intellect that extends beyond mere acquisition of information imparted by the teacher. The discussion, then, focuses on adult learners' educational needs in light of all these theories, particularly in light of Knowles' theory of Andragogy.

The final section of this chapter sums up the educational benefits, particularly in adult-oriented non-traditional educational environments, of e-learning in general and

teaching and learning by hybrid courses in particular. While the later chapters of this dissertation elaborate on the methodology and results of an empirical study to assess the congruence of hybrid courses with adult learning needs and the satisfaction levels of adult students learning from hybrid courses, this chapter discusses hybrid course delivery method as a pedagogical method in a generalized, rather than specific, way through exploration of secondary sources.

Learning Theories

Learning theories, generally understood to imply "a set of systematic, integrated concepts and facts that explain the phenomenon of learning" (Zhou, 2004, p. 6), assist educators in their efforts to understand how to maximize the efficiency and capacity of human learning. As such, they are, as Forrester and Jantzie (1999) maintain, "prescriptive theories," distinguished from the "descriptive theories" that pertain to neuroscience--the science of the brain and its functions that help us describe the processes by which brain learns (p. 11). Today, the place of learning theories in the field of education is firmly established; they are treated as building blocks for the development of successful teaching methods and strategies.

Learning theories originate from three major schools of thought in educational psychology: behaviorism, cognitivism, and humanism. The following is a brief introduction of these three schools of thought.

Behaviorism

Behaviorism defines learning as acquisition of new behavior in response to stimulation from the environment. Skinner (1968) expanded the concepts of behaviorism, whose foundation was laid by Watson (1958) and Thorndike (1966), and

firmly established the role of reward and punishment in the strengthening or weakening of voluntary and automatic behavior in behaviorist theory. Skinner wrote:

The application of operant conditioning to education is simple and direct. Teaching is the arrangement of contingencies of reinforcement under which students learn. They learn without teaching in their natural environments, but teachers arrange special contingencies which expedite learning, hastening the appearance of behavior which would otherwise be acquired slowly or making sure of the appearance of behavior which otherwise never occur. (Skinner, 1968, p.64)

Thus, according to Skinner, the process of contingencies and reinforcement shapes behavior and makes learning possible. Behaviorism in education, thus, seeks to design an instructional environment that uses “observable, measurable, and controllable objectives” and reinforces desired behaviors through recognition and reward and punishment (Munro & Rice-Munro, 2004, p. 28). Most traditional learning approaches are behaviorist in that teachers or organizations monitor learners’ progress and prescribe behavioral patterns to be repeated, often through methods involving drill and practice, until they become automatic, and attempt to hasten acquisition of knowledge by setting up contingencies, such as exams. Certain forms of application of technology assists behaviorist mode of learning, for instance in the form of computer-assisted instruction (CAI), by using drill and practice methods of teaching and by rewarding students to higher levels of learning for correct responses (Mergel, 1998). Behaviorism was also utilized, during 1970s and 1980s, in the then popular programmed instruction (PI), which divided larger informational material into smaller pieces and offered them to the learners to practice

through “teaching machines” that provided automatic feedback (Maddux, Johnson, & Willis, 1997, p.5, 112).

Despite the measured effectiveness of PI for elementary education, this form of teaching was never understood to be the ideal for higher education. Skinner, the father of PI, claimed that the reasons for PI’s effectiveness were the system's capability to provide immediate feedback and individualized learning and the fact that students followed a coherent sequence of instruction designed by experts. However, Skinner (1968) admitted that the system was suitable for students in elementary grades only and was too simple for higher levels. When PI suffered the loss of its popularity, experts pointed out that the reasons were that the PI packages tended to be boring, that they lacked individualization, that all information could not be appropriately broken down into small pieces, that they were suitable for isolated learning and not for collaborative group work which may be more effective for certain learning situations, and that they tended to isolate facts from their contexts (Maddux, Johnson, & Willis, 1997, p. 75). As we shall see in the subsequent section, the hallmark of adult learning is, among other factors, learning through collaborative academic projects and with attention to the context in which learning takes place, the very recognition of which shaped the evolution of computer-based education.

The later phase of behaviorism, in the next few years when computers became more affordable and technology advanced, sought to remove these deficiencies. Program developers now incorporated colors, graphics, and multimedia into K-12 software based on behavioral instruction techniques, of which Integrated Learning Systems (ILS) gained much popularity. With in-built features that provided individualized assessment and

diagnostics, interconnected networked computers through networking, and continuously monitored and adjusted the level of instruction where needed, ILS were offered as “total” solution to schools for low achievement. Critics of these products, however, denounced them as expressing “a factory model of instruction in which students are treated as product who, with quality control, will be shipped from the factory with exactly the same basic knowledge” (Maddux, Johnson, & Willis, 1997, pp. 76-77). Yet, as Munro and Rice-Munro (2004) point out, most organized instruction is still based on the behavioral model, even though seasoned training practitioners believe that a successful approach would be the one that would integrate the strengths of all the different approaches (p.29).

Cognitivism

While behavioral psychology is concerned with external behavior of human beings, cognitive psychology takes into account the internal mental processes of the individual to promote effective learning and thus focuses on the learner as an active participant in the teaching-learning process. Cognitive theories have been used as the foundation for discovery learning models, in which the teacher plays a limited role. Cognitive psychologists emphasize using teaching strategies that take into account students’ prior knowledge to facilitate acquisition of information and its retrieval for future use.

Cognitive information processing theory (CIP), based on cognitive psychology, for instance, emphasizes on memory as a key feature in decision-making and problem-solving. It sees learning as the development of interconnected memory structures. The level of one’s cognitive development, according to this theory, is in accordance with one’s information processing capability and stored information in memory. Human brain

is seen, under this theory, as a reservoir of knowledge. When the brain receives input in the form of stimuli to senses, existing “executive processes” govern the amount of attention specific sets of the input receive. These executive processes are the control mechanisms that direct the focus of the individual toward one or the other aspect of the received information. The mind uses the stored memory to actively manipulate the new information to make sense of the world around it. The mind then passively stores this information in its re-worked form for future use. Information processing theory, appropriately designated, thus, defines intelligence as internal processing of information (Lachman,Lachman, & Butterfield, 1979).

There are two major branches of cognitive psychology:

1. Cognitive-developmental psychology: Presented by Jean Piaget, this branch of cognitive psychology represents an “age-stage” developmental perspective, which distinguishes between the stages of children’s thinking and those of adults’ thinking. The theory also identifies stages of cognitive development (Tomei, 2004).
2. Cognitive-constructivist psychology: This branch of cognitive psychology favors a learning model in which knowledge is constructed, retained, and retrieved for future use with the learner’s active involvement in a process involving the encounter of new ideas with the prior knowledge. Constructivist psychology, thus, grants significant role to learners in the process of their learning (Munro & Rice-Munro, 2004, p. 28).

Of greater relevance to this study, whose subject matter is related to adult education through hybrid courses, are the cognitive constructivist psychological approaches. These

approaches effectively support adult learning, since, as the discussion below will establish, they correspond more closely to adult learning needs than any other approach forwarded by educational psychology. This observation justifies dealing with constructivism in greater detail and then tracing its impact on technology education.

Constructivism

Constructivism stands for the learning that “occurs most effectively when the individual actively processes the information in a way that is meaningful to him/her, and not simply and passively incorporates information unchanged from its original form” (Carlson, 2003). Also, Golden maintains, “[c]onstructivism presupposes that knowledge is actively constructed by learners through interaction with physical phenomena and interpersonal exchange” (2001, p. 20). From this perspective, “the theory describes knowledge as temporary, developmental, nonobjective, internally constructed, and socially and culturally mediated” (Fosnot, 1996, p. ix). Thus, learners’ active participation to construct meaningful and relevant knowledge, instead of their receiving knowledge from the teacher, is a distinctive feature of constructivist teaching and learning.

In contrast to behaviorism, constructivism sees learners’ motivation to learn as an important factor in the process of learning and focuses on students’ ability to create their own learning by constructing meaning of their own environment. Constructivist teaching methods, thus, emphasize that learners generate their own knowledge through the process of discovery and problem solving (Mergel, 1998). Papert (1993) attempted to distinguish between behavioral and constructive approaches in education by characterizing the former as ‘clean’ teaching and the latter as ‘dirty’ teaching (p. 135). The idea was that

behavioral approaches "isolate and break down knowledge to be learned (clean)," whereas constructive approaches are "holistic and integrative (dirty) . . . emotional, complex, and intertwined with the learner's social, cultural, and cognitive context" (Maddux, Johnson, & Willis, 1997, p. 78). Copley (1992) maintained that the roles of teachers and students differ in behaviorist and constructivist learning classrooms. In the didactic or behavioral approach, teachers are viewed as "masters of particular knowledge domains, whose job is to transmit expertise to students primarily by lectures and recitation," while the students simply memorize, practice, master, and demonstrate mastery of facts on tests. In contrast, in the constructivist classroom, teachers act as facilitators, who "help students become active participants in their learning and make meaningful connections between prior knowledge, new knowledge and the processes involved in learning" (p. 681). Lev Vygotsky, another cognitive psychologist, placed even greater emphasis on the social context of learning, and his constructivist theory, called social constructivism, emphasized the critical importance of interaction with people—other learners, teachers, for instance—for cognitive development (Maddux, Johnson, & Willis, 1997, pp.77-78).

Golden (2001) maintains that since the constructivist mode of learning emphasizes that learners construct their own knowledge in the context of their lives, a learning environment that seeks to encourage students to think in a particular way will do the following:

- Make sure that students have clarity of understanding about their ideas.
- Help students to understand the potential problems with their beliefs.

- Present alternate beliefs that the students view as acceptable. (Posner, et al., p. 211, cited in Golden, 2001, p. 14)
- Honebein (1997) identified the following seven instructional goals for constructivist learning environments:
 - Provide experience with the knowledge of the construction process.
 - Provide experience in the appreciation for multiple perspectives
 - Embed learning in realistic and relevant contexts
 - Encourage learning in the realistic and relevant contexts
 - Encourage ownership and voice in the learning process
 - Encourage the use of multiple modes of representation
 - Encourage self-awareness of the knowledge construction process (pp. 11-12, cited in Golden, 2001, pp. 16-17)

Julyan and Duckwork (1996) identified the following requisites for constructivist teaching:

- Asking students to think about what should be learned and is worthy of engaging their time and attention
- Offering a variety of avenues of exploration
- Teachers need to listen to the students and pay attention for any conundrums, puzzlement or confusion
- Give equal respect to all differences that may arise in the classroom
- Teacher acknowledgement that “not knowing” is an important state to live with (1996, p. 11-12 cited in Golden, 2001, p. 18)
- According to Fensham (1994), constructivist teaching requires teachers to

- Consider the pupil's prior knowledge relevant to the teaching process
- Appreciate that learning involves not only the acquisition and extension of new concepts but also the reorganization of old ones
- Enable and facilitate pupils to construct their own knowledge
- Design strategies to help the pupil to adopt new ideas and to integrate them with their previous knowledge
- Design classroom activities to build links with prior concepts in a process of generation, checking and restructuring ideas
- Design laboratory practical work to help the construction of knowledge through personal and social experience of the physical world
- Design laboratory practical work to help the construction of knowledge through personal and social experience of the physical world
- Recognize that final responsibility for learning rests with the pupil (p. 18).

All these scholars are pointing to a common theme: constructivism requires contextualizing the curriculum, taking into account learners' values and belief systems, and involving students in the planning of their learning activities because "students do not passively receive or copy input from teachers, but instead actively mediate it by trying to make sense of it and trying to relate it to what they already know" (Golden, 2001, p. 20).

Many scholars believe that constructivist educational models can fulfill the educational needs of modern learners (Riel & Harasim, 1994, cited in Partlow & Gibbs, 2003). Carr-Chellman and Duchastel (2000) noted the recently grown strong influence of constructivism on instructional design. Seeking to identify the features of an ideal online

course, they noted constructivist principles. An ideal online course, they concluded, is centered on student tasks in which students engage independently or collaboratively with other students and work on assignments with self-motivation while the teacher's role is reduced to a "sense of the instructor's personality at a distance" (p.234). In 2000, Ravitz, Becker, and Wong conducted a study entitled "Constructivist-Compatible Beliefs and Practices among U.S. Teachers," which points out that the publication of *Nation at Risk* report by National Commission on Excellence in Education in 1983 sparked interest in constructivist-compatible instruction. Many of the efforts that have followed favor incorporating constructivism in classroom activities, curriculum content, and school organization (Ravitz, Becker, & Wong, 2000).

As mentioned above, the early educational computer programs based on behaviorism facilitated learning in schools by providing opportunities in linear forms of learning with step-by-step progress to the end, through repetition, drill, and practice. While they were extolled for their success in lower educational levels, they were found to be deficient in learning situations requiring group work or higher level thinking. With advancement in computer technology, by end of the 1980s, computer programs based on constructive theories came in the market. "No longer satisfied with the notion of the passive learner, these innovative educations . . . [were] searching for ways to assist students to become active learners" (Bruenjes, 2002, p.14). Emerging from the works of developmental theorists, such as Jean Piaget, whose theory posited that children construct their own knowledge of the world through assimilation and accommodation, these programs allowed students greater choice in exploring and sequencing their explorations (Maddux, Johnson, & Willis, 1997, p.77).

Technology, adult education, and constructivism

As will be discussed below, the concepts involved in andragogy, or adult learning, closely resemble those in the theory of constructivism, which makes constructivism as the most suitable theory for adult learning. According to Knowles' theory of andragogy (1984), the success of adult learning depends on addressing the particular needs of adult learners, the needs related to their independent and assimilative modes of thinking, richness of their personal experiences that comes to bear upon their learning and constructing of knowledge, and their expectation that instructional methods will utilize interpersonal interactions to facilitate higher order thinking, as opposed to the traditional way of teaching and learning through knowledge reproduction (pp. 9-12). Adult learning needs closely coordinate and resonate with constructivist learning theory in that both theories are learner-centered, advocate multiple perspectives and acceptance of varying interpretations of reality in the instructional context, and emphasize higher order thinking and contextual construction of knowledge by the learner. Thus, it is logical to state that there is a philosophical connection between andragogy and constructivism.

In this connection, it is important to note, that there is a growing appreciation for technology's potential to facilitate constructivist approaches of learning and teaching. Partlow and Gibbs, for instance, point to the unique role that technology can play in helping educators utilize constructivist strategies in learning environment (Partlow & Gibbs, 2003). Matusevich (1995), similarly recognizes that there is a strong link between modern instructional technologies and the theory of constructivism and maintains that modern technology can play a significant role in bringing the theory of constructivist learning to the fore. Her argument in favor of utilizing technology for

constructivist learning is that the rapid pace of knowledge production in modern times requires a transformative approach to education, one that aims at teaching to be an information manager and not an information regurgitator. This objective can be achieved by instructional processes that emphasize small group instruction, coaching, individualized attention, active involvement by students, activities that require more cooperation than competition, and an integration of both visual and verbal thinking. These are the processes that constructivist learning theory favors. Studies suggest, according to Matusevich (1995), that technology has been found to assist in developing such learning processes, leading to higher student self-esteem and motivation to learn. The link between technology and constructivism is so close that with the growing role of computers in educational institutions, Matusevich (1995) concludes, a shift from didactic to constructivist teaching is bound to happen.

It is pertinent in this connection to point out that, as Kanuka and Anderson (1999) maintain, today's accelerating global competition for quality in post-secondary education entails higher learner expectations, such as improved access by removing time, place, and situational barriers and promotion of higher order thinking, which is developed through small group discussions, collaborative learning, brainstorming, case studies, and academic problem-solving exercises. These epistemological tools are underpinned by constructivist educational principles. The possibility of the implementation and feasibility of constructivist principles within the context of technology-mediated higher education, specifically through the interactive environment created by utilizing communication technologies, has been recently recognized in academia (Kanuka &

Anderson, 1999). These scholars argue that the processes involved in constructivist teaching and learning are not systematic; rather, constructing knowledge

. . . is a socio-linguistic process where there is gradual advancement of understandings built upon previous knowledge resulting in multiple dimensions of truth. . . . Thus we must bring our learners' prior knowledge to the forefront if they are to apply their current understanding to new situations in order to construct new knowledge. To achieve this, educators need to spend time understanding learners' current perspectives and, based on this information, incorporate learning activities that have real world relevance for each. (Kanuka & Anderson, 1999, p.3)

The interactive, learner-focused educational processes, that are possible through technology-mediated education, support this method of constructing knowledge. In other words, to encourage experience-based learning opportunities in context-rich learning environments, technology can provide invaluable tools. For these reasons, Kanuka and Anderson (1999) note, "constructivism has become a popular epistemological position for many educators who are using technology mediated learning" (p.4). Jonassen, Peck, and Wilson (1999), similarly, state that constructivism as a learning philosophy and pedagogy has gained general acceptance because modern education values making meaning in a social and personal way above transmission of information (iii). Their book argues that technology is a tool to think, learn, and construct knowledge with, and suggests many ways in which educators can use technologies to support constructive learning.

Humanism

Humanism, more of a personality theory than a learning theory, is a belief about freedom and autonomy of human beings. It emphasizes that "human beings are capable of making significant personal choices within the constraints imposed by heredity, personal history, and environment" (Elias & Merriam, 1980, p. 118). The major assumptions underlying humanism are the following:

- Human nature is inherently good
- Individuals are free and autonomous; thus they are capable of making major personal choices
- Human potential for growth and development is virtually unlimited
- Self-concept plays an important role in growth and development
- Individuals have an urge toward self-actualization
- Reality is defined differently by each person
- Individuals have responsibility both to themselves and to others (Hiemstra & Brockett, 1994)

Humanism in education is based on the idea that the purpose of education is to develop "self-actualizing persons" (Patterson, 1973, p. 22). Valett (1977) maintains that humanistic education is a lifelong process (p. 12). Humanistic education should achieve the following: "[t]he development of emotive abilities, the shaping of affective desires, the fullest expression of aesthetic qualities, and the enhancement of powers of self-direction and control" (Valett, p.12). Thus, as Elias & Merriam (1980) point out, "[t]he goal of humanistic education is the development of persons--persons who are open to

change and continued learning, persons who strive for self-actualization, and persons who can live together as fully functioning individuals" (p. 122).

Humanism in education emphasizes responsive teaching and individualized instruction, what Nuckles (2000) calls "student-centered teaching." Nuckles points out that in valuing student as a whole person, and in seeing teacher as a facilitator, helper, and partner in the learning process, student-centered teaching employs "concepts in adult education that flow directly from humanistic educational philosophy" (Nuckles, p.5). Hiemstra & Brockett (1994) similarly employ the term "self-directed learning" for the learning that occurs by individualizing the instructional process. They see a strong connection between adult learning processes and humanistic education since humanistic education allows learners to take responsibility for their own learning, an important adult learning need, as will be discussed in the discussion of andragogy below.

Each of the paradigms discussed above--behaviorism, cognitivism, constructivism, and humanism--has its own strengths and weaknesses. As pointed out above, educators realize that in utilizing the knowledge of these theories in teaching strategies, an integrated approach is most likely to yield desirable results. In technology-based instruction also, taking all the paradigms into account when developing and delivering instructional material is likely to prove beneficial.

In the context of educational technologies, scholars consider the knowledge of learning theories as important. Maddux, Johnson, & Willis (1997), for instance, point out that the early phase of computer use in classrooms can be characterized as a rush for technology for its own sake, based on the idea of "the more the better" with respect to

computers in schools. These authors saw this indiscriminate view of technology, implicitly supporting decisions regarding the purchase and use of technology for schools, as a problem. However, they maintain, with time educators' knowledge of theories of learning and teaching--most prominently those deriving from the educational philosophy principles of behaviorism, cognitivism, constructivism, and humanism--brought positive change, particularly as these theories began to influence the design and development of educational software and lessons involving technology (73-74). As Mergel (1998) maintains, the development of these theories has been influential in the modern instructional methods and designs for technology education.

Teaching and Learning Styles

In addition to the concepts and theories of learning advanced by psychologists belonging to different schools of thought, experts in the field of education generally recognize the importance of heeding to the individual students' learning styles, that is, their unique way of learning and processing information, for successful teaching and learning. Cauduro (2004) maintains that learning style, a method in which learners concentrate, process, and retain new and difficult information, is a combination of biological and developmental characteristics that help in determining whether or not a style of interaction will be effective for a particular learner (pp. 19-20). Keefe (1989) defined learning styles as "a set of cognitive, emotional, characteristics, and psychological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment." DeCapua and Wintergerst (2005) recognize the influence of a number of factors, including heredity, educational background, situational requirements, and age on the formulation of learning styles.

Defining learning styles, Simms and Simms (1995) emphasize the significance of individual perception in the processing of information and maintain that cognitive, emotional, and physiological behaviors formulate one's learning styles (cited in Cauduro, 2004, p. 20). These and other definitions of learning styles have a commonality among them: they recognize in general that social, psychological, emotional, environmental, and physical factors play major roles in developing a learner's learning style.

The proposition that individuals approach learning tasks in different ways suggests important implications for both teaching and learning: teaching that accommodates a student's style of learning can result in improved attitudes toward learning and an enhancement in the level of thinking skills, creativity, and academic achievement (Irvine & York, 1995, p. 485). In the context of technology learning, it is pertinent to point out that learning theories based on psychology, discussed above, when utilized in technology-supported education, create expectations of improved learning outcomes, as, it is hoped, these technologies support diverse learning styles.

Over time, experts have developed numerous systems to categorize learning styles. Most commonly, learning styles may be analyzed and understood according to the primary senses involved--visual, auditory, and tactile or kinesthetic--according to psychological aspects of perception, or according to methods of processing information. For example, one system developed by Felder and Solomon (2007) gives and defines the following four categories of learning styles:

Active and reflective learners include those who learn information by doing, applying, and explaining (active) and those who learn by thinking (reflective);

- 1) Sensing and intuitive learners include those who like to learn facts (sensing) and those who like to discover possibilities and relationships (intuitive);
- 2) Visual and verbal learners include those who remember best when they see, for instance, demonstrations and pictures (visual) and those who learn by reading or hearing words; and
- 3) Sequential and global learners include those who gain understanding linear steps (sequential) and those who learn in random steps (global). (Felder & Solomon, 2007)

Similarly, Samover and Porter (2004), in the context of discussing cultural preferences in ways of teaching and learning, categorize learning styles into four groups:

- 1) *Cognitive learning styles* refer to different ways of perceiving and processing information. The four common subcategories of cognitive learning styles are as follows:
 - i) Field independence versus field sensitivity: Field independent learners tend to be analytical, focus on “impersonal, abstract aspects of stimuli in the environment,” prefer to work independently (Samover & Porter, p. 243), and gain motivation from rewards based on individual competition. Field sensitive learners, in contrast, learn with a global and social perspective and prefer to work with others.

- ii) Cooperation versus competition: This cognitive learning style refers to the student's preference for either collaborative work or independent work in competition with others for rewards.
 - iii) Trial and error versus "watch than do": Students with trial and error learning style prefer to solve problems and reach conclusions by trying, making mistakes, and learning thereby, while other students prefer to observe first before attempting to do the task.
 - iv) Tolerance versus intolerance for ambiguity: Students with low tolerance for ambiguity perform well in highly structured classrooms and with learning material that emphasizes right and wrong, correct and incorrect, yes and no answers. Those with high tolerance for ambiguity do not seek truth in absolute terms.
- 2) *Communication learning styles* refer to the preferred ways in which students engage in activities involving speaking, listening, and critical thinking. The subcategories include the following:
- i) Direct versus indirect communication: These learning styles refer to the individual student's preference for either direct or indirect communication in the educational environment.
 - ii) Formal versus informal communication: These learning styles refer to the degree of formality, openness, and relaxed manner of discussion in teacher-student relationship in the educational environment.

- iii) Topic-centered communication versus topic-associating communication: This learning style refers to the preferred manner in which students approach a topic. Topic-centered approach requires students to focus on a topic or closely-related topics and proceed in a linear fashion, while topic-associated approach requires students to deal with a theme whose links are largely left unstated.
- 3) *Relational learning styles* refer to the manner in which students relate to each other and with the teacher in the classroom setting. Its subcategories include the following:
 - i) Dependent versus independent learning refers to the degree of support and help student require from teachers and one another.
 - ii) Participatory versus passive learning refers to students' preference either to participate in the learning process by active involvement in discussions or to listen passively to the teacher's lecture and take notes.
 - iii) Aural, visual, and verbal learning styles refer to whether a student learns primarily by listening to the spoken words, observing visual demonstrations and images, or reading and writing.
- 4) *Motivational learning styles*: There are two types of motivational styles.
 - i) Intrinsic versus extrinsic motivation: Intrinsic motivation means that the source of motivation to succeed in learning lies within, that is, the student feels good when he or she acquires knowledge. In

contrast, outside forces, such as desire to impress parents, impact extrinsic motivation of students.

- ii) Learning on demand versus learning what is relevant or interesting refers to whether students learn best when the curriculum is pre-set by the teacher or the educational institution or when the curriculum is loosely set and they are allowed to explore what interests them.

Kolb's experiential learning model

An important name in connection with learning styles is that of David Kolb. During his research, Kolb reviewed works of Kurt Lewin, John Dewey, and Jean Piaget, noted strong similarities between the three, and thereafter created his theory of experiential learning. The models of learning that Lewin, Dewey, and Piaget had developed, all involved a circular approach to learning that started with the experience of the learning (Kolb, 1984). Kolb defined experiential learning as “the process whereby knowledge is created through the transformation of experience” and that “learning transforms experience in both its objective and subjective forms” (p.38). This definition became the cornerstone of his model of experiential learning process. Appendix Three and Four give the figures that represent the main concepts of Kolb's theory (Kolb, 1984, p.42).

The model of experiential learning involves two sets of polar opposites. Kolb believed that humans grasp experience immediately in a concrete manner or abstractedly in an indirect manner. Once an individual understands an experience, it can be added to other experiences through reflective observation or active experimentation. The two

methods used to grasp experience and the two ways this experience is transformed create four unique types of knowledge: divergent, assimilative, convergent, and accommodative. These four types of knowledge set out four distinct learning styles, or learning preferences, in Kolb's experiential learning theory model and complete the four-stage learning cycle.

In this cycle of learning, "immediate or concrete experiences" provide a basis for "observation and reflection." These "observations and reflections" are assimilated and distilled into "abstract concepts" producing new implications for action which are "actively tested," in turn creating new experiences. The learning cycle model, thus, is a cycle of experiencing, reflecting, thinking, and acting. Immediate or concrete experiences lead to observations and reflections. Reflections are then assimilated into abstract concepts leading to action and active testing, or experimentation. The cycle leads to the creation of new experiences.

Kolb defined four stages on the learning cycle as following:

- Concrete experience: learning from feelings
- Reflective observation: learning from watching and listening
- Active conceptualization: learning from thinking
- Active experimentation: learning by doing

(Kolb, 1985, 25-26; Henke, 2001, p. 6)

This model is also presented as a two-by-two matrix, which highlights Kolb's terminology for the four learning styles: diverging, assimilating, converging, and accommodating.

	<u>Doing (AE)</u>	<u>Watching (RO)</u>
<u>Feeling (CE)</u>	Accommodating (CE/AE)	Diverging (CE/RO)
<u>Thinking (AC)</u>	Converging (AC/AE)	Assimilating (AC/RO)

In other words, each learning style combines and represents two processes. For instance, a person whose dominant learning style is “doing” will be an accommodator or converger. The following is a brief description of Kolb’s four learning styles.

Diverging (feeling and watching--CE/RO): These learners prefer to watch rather than do. They tend to gather information and use imagination to solve problems. They view problems from many different perspectives and like to brainstorm several solutions. They are interested in people and learn through social interaction and discussion.

Assimilating (watching and thinking--AC/RO): People with this learning style prefer concise, logical approaches, and, therefore, excel at understanding wide-ranging information and organizing it in clear logical format. They are less focused on people and more interested in ideas and abstract concepts. They prefer readings, lectures, and analytical models and think things through.

Accommodating (doing and feeling-CE/AE): People with this learning style learn by doing and feeling through tasks. They use analytical information produced by other people’s analysis and prefer to take an experiential approach. They are action oriented and risk takers, setting targets and trying different ways to achieve an objective.

Converging (doing and thinking—AC/AE): These learners use their learning to find solution to practical issues. They prefer to deal with things and practical tasks than with people and social issues. They are best at finding practical uses for ideas and theories. They experiment with new ideas and work with practical applications. (Kolb, 1985, cited in Henke, 2001, p. 5).

Kolb's theory has obvious significance for education at different stages of life and for learners with different learning styles. Although Kolb believed that the cycles and learning styles are linked together, he understood that students' learning cycles shift over time (Henke, 2001, p. 6)--an observation that suggests differences in the learning styles of children and adults. On the basis of this theory, experts now emphasize that it is beneficial for learners if they recognize their own learning styles and take them into account when planning their learning activities. Cauduro (2004), for instance, maintains that such an awareness on the part of students would encourage students "to play on their strengths and work on their challenges" (p.9): an awareness of their own learning styles will enable students to improve their study skills, personalize their learning experiences for themselves, and, in situations where there are inadequate learner support services and lack of individual attention, they will be better equipped to deal with the situation (Cauduro, pp.10-11). It is no wonder, then, Cauduro (2004) observes, that existing studies point to successes in integrating students' learning styles in classroom for better educational outcomes. This observation is supported by reports from educational practitioners throughout the United States that when teachers changed from traditional teaching to the learning style teaching at elementary, secondary, and college levels, students' scores rose significantly (Petty, 2004, p. 7). Moreover, owing to these

successes in learning, Cauduro claims, “learning how to learn could enable students to truly become life-long learners (p. 23),” an important observation particularly in the context of andragogy or adult learning as the relevant section below will elucidate.

Bloom’s Taxonomy of the Cognitive Domain

No discussion of learning theories and learning styles can be considered complete without discussing Bloom's taxonomy because of its vast influence on teaching and learning in modern times. The taxonomy arranges aspects of learning hierarchically, with the various stages in the hierarchy from less to more complex cognitive involvement on the part of the learner. Thus, according to Bloom’s (1956) "Taxonomy of Critical Thinking,” there are six levels of cognition: knowledge, comprehension, application, analysis, synthesis, and evaluation, arranged in the order of low to high levels. The lowest level is knowledge--simple recall of information--which allows the learner to passively receive information from the teacher. The higher levels require using the received knowledge to create new knowledge through analysis, synthesis, and evaluation in deliberative processes during which the acquired knowledge interacts with the prior knowledge and engages the learner in increasingly more complex mental endeavors involving abstract ideas.

Theory of Affective Domain

In this connection, it is also important to note the relationship between levels of Bloom’s taxonomy and the theory of Affective Domain. In 1964, Krathwohl, Bloom, and Masia classified affective domain into five major categories: receiving, responding, valuing, organizing, and characterizing. In 1996, Henson defined affective domain as the part of “human learning that involves changes in interests, attitudes, and values (p.

57). Hohn (1995) maintained that it is when acquired information interacts with additional experience integrated into cognitive structure that affective learning at higher levels of the taxonomy takes place. This learning becomes internal or “part of the individual’s habitual way of perceiving and responding to the environment (pp. 301-302).

This discussion of Bloom's taxonomy and Affective Domains implies that there are different levels of cognition that students can arrive at in their efforts to know about a topic or subject. Educators now agree that teaching strategies should endeavor to elevate students' cognitive level to higher order thinking by involving students in the acquisition of their own knowledge. Brewer, DeJonge, and Stout (2001), for instance, suggest that teaching strategies like role playing, inquiry, and case studies should be employed for encouraging sophisticated thinking processes that lead to higher levels of cognition (p. 8). As discussed in the previous section, earlier behaviorist educational technologies demonstrated their capacity to improve student learning, but they were criticized for being suitable for lower levels of education only. Newer technology is now being employed with the objective to support higher order cognitive skills. In fact, with the availability of instructional technologies, that allow greater learner involvement and collaborative work, it is being recognized that technology-enhanced courses can be designed to develop learners' cognitive skills along the lines of Bloom’s taxonomy (Brewer, DeJonge, & Stout, 2001, p. 7).

The Taxonomy of the Technology Domain

In recent years, Tomei (2003) developed the Taxonomy for the Technology Domain, an equivalent to Bloom's Taxonomy in technology-based education. Tomei's

taxonomy offers a view for using technology to enhance learning. Arranged in the order of low to higher levels of complexity of student learning, there are six levels of this taxonomy: Literacy, Communication, Decision-Making, Infusion, Integration, and Technology. The obvious objective of this taxonomy is to help teachers and students employ technology as an effective learning strategy to construct a learning environment in which students move from fundamental literacy and basic knowledge of technology to utilize technology for higher order learning. Thus, with increasing levels of cognitive involvement, students

- Involve in scholarly and professional exchange of information including participation in collaborative projects and dialog;
- Learn to make decisions by using tools such as brainstorming software, statistical analysis packages, and spreadsheets and databases;
- Learn to infuse various categories of instructional technologies, such as the Internet and audio-video and multimedia technologies, into academic explorations;
- Learn to create new teaching material by gathering disparate resources and connecting them through technology; and
- Understand the technology-related social and ethical issues.

It is obvious from the above enumeration of the levels of student learning achievable through technology education that, beyond the basic literacy, it is expected that technology will facilitate students' involvement in the process of their own learning, independence in the manipulation of technology as a tool for the construction of knowledge from their unique perspectives, and progress to higher order thinking.

Multiple Intelligences

The addition of Howard Gardner's theory of Multiple Intelligences (MI) to the above-discussed theories provides added insights. Seeking to describe our cognitive profiles holistically, Gardner's theory attempted to "tease out the various skills and capacities that have too easily been combined under the rubric of 'the mental'" (Gardner, 1983, p. 7).

Distinguishable from learning styles and from the prevailing idea in cognitive and developmental psychology of the existence of independent "faculties," multiple intelligences make it "possible to identify an individual's intellectual profile (or proclivities) at an early age" (Gardner, 1983, 10). McKenzie (2002) makes the distinction clear: he points out that multiple intelligences are "each viable, distinct pathways to learning" (p. 1), distinguishable from talents, gifts, aptitudes, and learning styles. Talents, gifts, and aptitudes, according to McKenzie, refer to above average abilities of simple understanding, and learning styles are "fixed modes of understanding that a learner uses regardless of the instructional context. Intelligences, in contrast, are "legitimate conduits of cognition that can be flexibly applied by all learners across the curriculum in varied contexts" (p. 1).

The significance of MI is that, unlike our common tendency to attribute certain talents and intelligences to some learners, and diagnose the absence of some talents and intelligences in others, Gardner's theory of intelligences avoids labeling learners--as single-measure tests like Intelligence Quotient do--and, instead, seeks to enhance a person's educational opportunities by manipulating instructional materials and programs with the aim to holistically develop learners' multiple intelligences (Gardner, 1983, p.

10). Gardner's definition of intelligence is simply "the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (Gardner, 1991b, p. 15). As McKenzie (2002) points out, the cultural foundation of multiple intelligences no longer allows "a one size fits all solution for providing instruction" (p. 6). Instead, it presents "a pluralistic view of mind," which sees people as endowed with different and discrete cognitive abilities and styles for which there is no single measure (Gardner, 1993, p. 6-7).

The following is an overview of the nine intelligences in Gardner's theory of MI in Gardner's own words.

1. Linguistic intelligence (as in a poet);
2. Logical-mathematical intelligence (as in a scientist);
3. Musical intelligence (as in a composer);
4. Spatial intelligence (as in a sculptor or airplane pilot);
5. Bodily kinesthetic intelligence (as in an athlete or dancer);
6. Interpersonal intelligence (as in a salesman or teacher);
7. Intrapersonal intelligence (exhibited by individuals with accurate views of themselves) (Gardner, 1991b, p. 27)

The following is somewhat greater description in McKenzie's words of these intelligences, not including the two that Gardner later added—existential and naturalist:

Verbal/linguistic: Traditionally one of the heavily emphasized intelligence in the classroom. It has been valued because it matches the way we traditionally have taught: lecture, recitation, textbooks, and board

work. It includes the ability to express oneself orally and in writing, as well as the ability to master foreign language.

Logical/mathematical: Also highly valued in traditional instruction. It is not simply the intelligence of mathematics but of logic and reasoning. This intelligence allows us to be problem solvers. It seeks structure in the learning environment and thrives on sequenced, orderly lessons. In the traditional classroom, students are asked to conform to the teacher's instructional approach, and this intelligence allows them to do so.

Visual/spatial: Provides for spatial reasoning through the use of charts, graphs, maps, tables, illustrations, art, puzzles, costumes, and many other materials. As educators, we are instinctively aware of this intelligence. The visual/spatial intelligence allows students to picture ideas and solutions to problems in their minds before they are able to verbalize them or put them into practice.

Bodily/kinesthetic: The intelligence of active learning. The kinesthetic intelligence is promoted through fine and gross motor activities, such as manipulative learning centers, science labs, active games, and dramatic improvisations. Students with a strong bodily/kinesthetic intelligence may tend to seem overactive in the traditional classroom, but they thrive in hands-on learning environment.

Musical/rhythmic: The intelligence of patterns, including song, poetry, instruments, environmental sounds, and response to rhythms. By picking up the patterns in different situation, learners are able to make sense of their environment and adapt successfully. Note that this is not exclusively an auditory intelligence; it can include all kinds of patterns.

Intrapersonal: The intelligence of feelings, values, and attitudes. The intrapersonal intelligence helps the learner make an affective connection with the curriculum. Children who ask, “Why do I need to learn this?” or “Is this policy fair?” are exercising their intrapersonal intelligence. It is the part of us that expects learning to be meaningful.

Interpersonal: The intelligence that provides for social learning in all its forms. Interpersonal intelligence requires social interaction in order to make sense of learning. Students with a strong interpersonal tendency may have been labeled ‘too talkative’ in the traditional classroom. They thrive in cooperative groups where they work with partners, and even in whole-group instruction where they are free to ask, discuss, and understand. (McKenzie, 2002).

This overview emphasizes that there are some intelligences that have traditionally been emphasized in classrooms, while others are not. In other words, traditional teaching and learning environments do not develop intelligences holistically. The knowledge of

the theory of MI can allow teachers to employ teaching methods in their courses in ways that provide learners with opportunities to develop all the intelligences.

In this connection, McKenzie (2002) notes that the demands of today's job market based on information economy are greater than ever before, and so is students' need to develop their multiple intelligences. Today's students need skills more than just the 'three R's--reading, writing, and mathematics; they need information technology skills, information literacy skills, problem-solving skills, collaboration skills, flexibility to adapt and adjust ideas, and creativity to be able to present information and ideas in novel or unique ways. Thus, today, more than ever, students need to develop all their intelligences to succeed in the workplace, particularly because, as McKenzie (2002) states, the multiple intelligences in Gardner's theory correspond to the skills needed in the Information Age. McKenzie also points out that the six National Technology Standards (NETS) developed by the International Society for Technology in Education (ISTE) match up with Gardner's intelligences in considering appropriate student uses of technology (pp. 23-24). In fact, in a book, *Changing Minds* (2004), Gardner himself recommended extending the use of artificial intelligence to multiple intelligences to help people overcome their weaknesses (p. 203). Predicting future influences of technology in the developing of multiple intelligences, Gardner wrote:

[A]rtificial intelligence is already engaged in changing our minds and will doubtless do so to a much greater degree in the future. I fully expect the enterprise of dryware--artificial intelligence of one sort or another--to become far more enmeshed with our present wetware. . . . This transformation will occur even if the critics are right in their essential

claims that machine intelligence is not of the same order or variety as human intelligence and will remain--at least for the foreseeable future--fundamentally different from, and subservient to, human intelligence. (p. 204)

Thus, as this quote suggests, the use of technology has an enormous potential as a learning tool in developing the different forms of intelligences of Gardner's theory, particularly because Gardner's theory views cognition as a non-linear process.

Gardner's theory has its challengers. Morgan (1992), for instance, compared Gardner's MI theory to the work of cognitive style theorists and concluded that MI theory did not discover new intelligences, but merely reframed what others have defined as cognitive styles. Thus, according to Morgan, Gardner merely played with semantics when he described the nature of each intelligence with terms such as abilities, sensitivities, and skills. Despite this criticism, however, Morgan acknowledged that, even though other prior theorists like L.L. Thurstone had already argued against the possibility of explaining the complexity of human intellectual activity with a single factor, Gardner made a significant contribution to the field by identifying the various abilities and developing a theory of multiple factors (Morgan, 1992).

Besides the above criticism, there have been a number of other attacks and adverse interpretations of the MI theory. For a decade after the publication of *Frames of Mind* (1983), Gardner declined commenting on them. In his own words, "I had issued an ensemble of ideas (or "memes") to the world, and I was inclined to let those memes fend for themselves" (Gardner, 1993, p. 79). In *Intelligence Reframed* (1993), he finally spoke

out, exasperated at blatant racial and ethnic stereotyping when he heard that different groups were being aligned with a particular intelligence. At that time, he identified seven myths that had developed in relation to his theory of MI. The first myth was that since these intelligences have been identified, it should be possible to measure each of them with a specific test. In response, Gardner expressed his disdain for a psychometric approach to measuring intelligence, particularly since paper and pencil tests would be examining the whole array of intelligences through the use of linguistic and logical intelligences only, while Gardner's theory assigns a place of centrality to contexts. Paper and pencil tests will, thus, decontextualize an intelligence. In debunking the second myth that an intelligence is the same as a domain or a discipline, Gardner pointed out that intelligence is a construct that draws on biological and psychological potential and capacities, while domains or disciplines are socially constructed activities. Musical performance, for instance, is a domain, which involves body kinesthetic, personal, and musical intelligences. Gardner addressed another myth in asserting that an intelligence is not the same as a learning style, a cognitive style, or a working style. The difference lies in the range of applicability: A style can be applicable to an indefinite range of content, while an intelligence relates to a specific content. Thus a person with a reflective style will be reflective whether he or she is dealing with language or music, although the levels of reflectiveness in different domains can differ, according to Gardner. Since the same thing can be said of intelligences--that, for instance, a person with linguistic intelligence who is good at writing in his or her native language may not excel in public speaking--Gardner sums up his explanation by saying "[p]erhaps the decision about *how* to use one's favored intelligences reflects one's preferred style" (Gardner, 1993, p. 85).

The other criticisms that Gardner presents as myths in *Intelligence Reframed* include the idea that MI theory is not empirical, that it is incompatible with *g* (the term used by psychometricians to designate the existence of general intelligence), hereditary and environmental influences, and that the term *intelligence* is too broad under the theory. Gardner claimed the empirical bases for the theory by pointing to the laboratory and field research studies and data that contributed to the development of the theory and the incorporation and corroboration of the theory by the new scientific data. As to the criticism that the MI theory is incompatible with *g*, Gardner asserted that his interests lay in intellectual processes that remained unexplained by *g*. He further claimed that his theory of intelligences does not disregard the constant and dynamic interaction between genetic and environmental factors on human development in the creation of human abilities or differences. He acknowledged that his theory defined intelligence in wider terms and encompassed a larger range than could be in the constricted traditional definition of *intelligence* that regarded certain scholastic abilities as if they fully described the range of human capabilities (Gardner, 1993, pp. 85-88). He believed, in this regard, that "conceptualizing a number of semi-independent intelligences presents a more sustainable view of human cognition than does positing a single bell curve of intellectual potency" (Gardner, 1993, p. 89). In the end, Gardner also emphasizes that his theory is not a prescription for educational reform. What educators should derive out of MI theory, according to Gardner, is that "education works most effectively if . . . differences are taken into account rather than denied or ignored" (Gardner, 1993, p.91). In other words, Gardner's theory is inclusive: it is designed to include people with different strengths, and it is against labeling students as slow or special.

Secondary literature suggests two diverse streams of reactions to Gardner's theory of MI: it remains a disputed theory in the scientific community, while school reformers have widely embraced it by realizing the confirmation of the intuitive understanding of a wide range of human capabilities that are hard to assess through traditional psychometric methods and to express through scholastic achievements only. Context and individuality of the learner play a large part in the assessment (Gardner, 1991a). As will be discussed below, one of the strengths of instructional technologies, particularly in adult learning environments, lies in allowing the learner to impress the process of learning with the mark of his or her own personality, which has developed under the influence of previous experiences and circumstances and which supports his or her learning style, in accordance with the MI theory. Thus, the theory of MI, advocating inclusiveness, is a *de facto* support for the educational significance of instructional technologies in adult learning environments.

It is also clear from the above discussion that there is more than one system of categorizing and defining learning styles and intelligence or understanding human ability to learn. In view of the diversity of learning styles, hierarchical levels of cognition, and multiple intelligences, it is obvious that incorporating a variety of learning pathways increases the chances of fulfilling the learning needs of a variety of people. Thus, it is imperative that the instructional designers employ teaching strategies that involve a variety of approaches and address a variety of learning styles.

Andragogy and Knowles' theory

Besides these macro-concepts in general learning processes, it is also important to consider the distinction between children's and adults' learning styles, both in

consideration of the context of this study, which is focused on adult learning, and due to the fact that the workplace in the current Information Age requires adults to learn continuously to meet the rising skills needs. Knowles' theory of andragogy (adult learning) differentiates the field of adult education from pedagogy by noting that adults' learning needs differ from those of children. Knowles' model for adult education has five underlying assumptions about the adult learner. An adult learner

1. has independent self-concept and can direct his or her own learning;
2. has accumulated reservoir of life experiences that is a rich resource of learning;
3. has learning needs closely associated with changing social roles;
4. is problem-centered and interested in immediate application of knowledge;
and
5. is motivated to learn by internal rather than external factors (Knowles, 1984).

Researchers and practitioners today hold an increasingly greater conviction than ever before that the use of andragogical principles and practices promote meaningful learning among adult students (Dooley, Lindner, & Dooley, 2005). In accordance with this conviction, attention to adults' autonomy and self-directedness, relevancy- and goal-orientedness, and years of experience require that instruction for adults focus more on the process and less on the content being taught. Scholars maintain that since adults expect to be active participants in their learning, strategies such as case studies, role playing, simulations, and self-evaluations are more useful for motivating them and that instructors

should play the role of facilitator or resource rather than of lecturer or grader (Brewer, DeJonge, & Stout, 2001, pp. 11-18). Adult educators, therefore,

. . . must plan activities that make use of learners' prior knowledge and experiences, use a variety of approaches for teaching the same concepts, and adapt to the needs and expectations of each group. This makes it imperative that those planning and implementing classes, workshops, and technology-based delivery know their participants' needs and experiences ahead of time. (Brewer, DeJonge, & Stout, pp. 17-18)

As noted above, and as the following discussion will further elucidate, technology-driven learning environments not only have increased potential to address diverse learning styles and multiple intelligences, but also increased capability to address adult learning needs.

Application of Instructional Technologies and their Effect on Teaching and Learning

As discussed above, there is a growing realization that instructional technologies have now evolved to make it possible to construct a learning environment that supports students' individual learning needs and that, as Smutz (2002) believes, such an environment assists students to learn more (p.16). This awareness, coupled with the increasing cultural, linguistic, and age group diversity in today's learning environments, has led institutions of higher education to invest heavily in the acquisition of technological infrastructures (Jones, 2004).

Now that most modern classrooms are equipped with a variety of technologies, employed with the expectation of better learning outcomes, educators are concurrently realizing that the goal of effective use of technology has not yet been reached. This

realization is concurrent with a growing recognition among scholars that learning is "a multidimensional process affected by various cognitive elements" (Smutz, 2002, p.16). Thus, as Brewer, DeJonge, and Stout (2001) maintain, the ideal role for instructional technology is to provide support to the learning process without competing with the learning process (p. 39). Unfortunately, a majority of faculty has failed to adopt technology as a learning support. Also, while scholars are emphasizing the importance of understanding the effect that particular forms of technology impart on learning and teaching styles, not all teachers have the knowledge of the support to specific learning needs and styles that particular technologies provide (Smutz, 2002). No wonder, then, that in many instances technology is being employed merely for creating an impression of modernity for the institution, "the technology façade" (Tomei, 2002, p.5). What is needed, instead, is to comprehend the effect of each specific method of instruction and delivery and each technology-based instructional activity in the light of our present knowledge of learning theories and learning styles, as well as the course-specific learning objectives, to elevate students' thinking from lower to higher order.

At present, despite the less-than-expected educational outcomes from technology-based education, the place of instructional technologies in the area of education is firmly established, possibly because technology's potential remains undoubted and unquestioned even though its proper use has not yet been conclusively determined. One indication of this faith in technology can be found in the *State of the Industry Report* in the American Society for Training & Development (ASTD), according to which,

. . . based upon 1998-1999 data, the average firm in the ASTD

Benchmarking Service delivered 8.5% of its training and development

using learning technologies. Future corporate projections suggest the spread of learning technologies is likely to continue. Likewise, use of learning technologies in public education has grown to such an extent that in the United States each state now employs a state-level educational technology coordinator to facilitate instructional technology application and integration in public schools. (cited in Brewer, DeJonge, and Stout, 2001, p. 38)

In this era of technology-based education, demand for distance education has greatly increased (Brunnemer, 2002). As discussed below, the current belief is that this method of course delivery makes information transmission, knowledge creation, and development of higher order thinking possible.

Distance Education and Hybrid Courses

Distance education, an increasingly popular educational delivery method in modern times, has revolutionized the learning and teaching processes at both national and international levels by optimizing the chances of learning, particularly for nontraditional students. The growth in the popularity of distance education is primarily the result of the concurrence of great scientific developments and changed social conditions that have increased demand for education that offers flexibility of time and place--replacing the rigidity of traditional institutions--and places greater emphasis on learners' specific needs for knowledge-- substituting for the uniformity of traditional instruction. In distance learning, "the learner is geographically separated from the educational institution, the instructor, and other learners" (Cheurprakobkit, 2001, p.279). However, despite this geographical separation, successfully providing and receiving distance education requires

the integrated efforts of several participants--students, instructors, facilitators, support staff, and administrators.

Research indicates that students perceive that distance education permits them greater access to courses, convenience in scheduling school work, greater accommodation of their home and work responsibilities, decreased travel time to and from classes, and reduced costs (Roger & Brown, 2000; Johnson, 1999). On the other hand, students fear unpredictability of technology and possible technical failures and grow anxious over lack of classroom community and interchange (Hollis & Madill, 2006).

While distance education offers learners the convenience of receiving high quality education at home, it requires that the learners be self-motivated and self-directed as a precondition to benefit from this non-traditional educational delivery method. Distance education courses often engage learners in individual and collaborative projects that require independent research and learning, high level of interactivity, and infusion of personally relevant information in the final construction of knowledge. Thus, educators recognize that distance learning is better suited to the needs of higher education and adult learning than for elementary education. For this reason, Dupin-Bryant (2000) insists that institutions of higher learning offering distance learning can better serve distance learners if the teaching methods employed in distance learning courses are more learner-centered, rather than teacher-centered as they are in traditional courses (p. 8). In other words, scholars recognize that distance education is more suited to serve the needs of adult learners, who are intellectually and psychologically ready to utilize the constructivists and humanistic teaching and learning techniques rather than behaviorist ones.

According to Dooley, Lindner, and Dooley (2005), adult learners' satisfaction with learning processes is directly influenced by how the learners interact among themselves and their instructor. Thus, greater the interaction among the learners themselves and between the learners and the instructor, the higher would be the learners' level of satisfaction. A drawback of distance education pointed out by some researchers is that a large "transactional" distance—not geographical distance, but a "pedagogical phenomenon"-- in distance education might hinder learner satisfaction and achievement (Moore & Kearsley, 1996, p. 200). Dooley, Lindner, and Dooley (2005) describe "distance" in this context as "the responsiveness of an educational program to the learner, rather than in terms of the separation of the instructor and learner in space or time or both." Some research points to some level of student dissatisfaction with, and distraction in, on-line discussions due to the absence of the teacher and peers and the missing instant feedback and reactions (Stelzer & Vogelzangs, 1994). This situation, however, can be attributed to the fact that most distance education courses are merely traditional courses placed on the web site (Howard, Schenk, & Discenza, 2004).

Hybrid courses appear to be an ideal format to overcome the problems of the possibility of the increase of transactional distance in fully online courses and the need to make learning accessible to adults who are unable to attend classes like traditional students due to their work and family responsibilities and who would like the geographical distance between the learner and the classroom somehow surmounted without sacrificing the quality of learning (Hall & Dudley, 2005; Murphy & Stanton, 2004). Scholars indicate that hybrid courses are especially appropriate for such learners

whose busy schedules require an alternative delivery method but who also need the structure of a traditional classroom (Levine & Wake, 2000).

Hybrid courses are a variation of distance education in that they reduce students' face-to-face time of actual presence. The rationale for hybrid courses is to target students that are not at remote locations, are not part of a fully online program, and are part of an educational program in which it is important for them to establish or maintain physical links with the educational institution offering the program (Kym, 2005). In such cases, according to Kym, offering the hybrid format, with half the classes offered online and half in a traditional classroom, is appropriate.

There are several advantages of hybrid learning model: reduced time required to be present in class, availability of collaborative environment online, availability of traditional feedback mechanism in face-to-face lesson delivery formats, and convenience and flexibility of scheduling. Often such classes meet late in the day, making it convenient for full-time workers to attend, and for shorter time periods. Such courses allow students class time when the course content requires them to practice speaking before a live audience as well as permit them the opportunity to practice to communicate electronically, as certain courses that seek to prepare students for a professional work place require (Kym, 2005). Kym, however, cautioned, on the basis of the finding of an empirical study, that the pre-requisites for students' success in a hybrid course is students' self-motivation to succeed, adequate language proficiency on the part of students to enable them to participate in online discussions, and a considerable time investment by learners.

Although hybrid mode of teaching is relatively new, some research exists to understand its effectiveness and efficiency. In general, existing research provides evidence of positive perception of hybrid courses on the part of both instructors and students. Instructors have found the hybrid model more conducive toward successfully accomplishing course learning objectives than traditional courses, establishing greater contact between students and faculty, and giving instructors greater flexibility and convenience in scheduling in their courses. Vaughan's (2004) study, for instance, found the potential of such courses in promoting the inquiry process among learners. Students, similarly, have reported positive attitudes toward hybrid courses. These reports have, to some degree, also been quantitatively substantiated (Koch, 1998; Garnham & Kaleta, 2002).

Limited research data also exists to indicate that students' access to high-level Internet connections and their previous knowledge of online format contributes to students' satisfaction (Kym, 2005). Kym (2005) found that students reported that they spent more time on the online component of the hybrid course than on the face to face component. Kym, however, speculated that technical difficulties, general frustration, or the unfamiliar teaching mode might have led students to believe that the on-line component required greater time investment. Similarly, it has been found that while some students may feel uncomfortable in posting responses to be read by the whole class, the ability to prepare the text without the fear of making mistakes in front of other students is found to make the learning environment non-threatening for other students (Strambi and Bouvet, 2003; Blake, 1998; Ware, 2005). Kym's (2005) study also concluded that students, in general, reported some satisfaction and sense of

accomplishment in hybrid courses, although the conclusiveness of the finding was weakened by the fluctuation in students' responses across disciplines and when they were surveyed multiple times over the course of the semester. In a similar study, Johnson (2002) found that hybrid format increased the accessibility of course content by students and connectivity between students and himself in his hybrid course which was earlier taught face-to-face only, but there was no significant difference in the effectiveness of the course when it was taught in both format: the hybrid format and the traditional format.

Successful hybridity in learning, however, according to Sands (2002), depends on connecting the face-to-face component of hybrid courses with the online component and “bringing the two dissimilar parts together so that they work in concert.” To address this requirement, significant published research exists in various disciplines about teaching in hybrid environments and makes valuable suggestions as to the principles that teachers should follow in order to tie the two components of hybrid teaching in their course design (Sands, 2002).

Despite the availability of this information for educationists, what Dooley, Lindner, & Dooley (2005) perceives as the failure of technology-enhanced education in undergoing changes that would maximize its effectiveness and efficiency might well be the result of paucity of research in order to comprehend whether hybrid courses, in which learners are most likely to be adults with busy schedules, respond to adult students' needs in accordance with the theories of constructivism in learning and the theory of andragogy among theories of learning styles. It is significant for the purposes of this study to note that the literature review led this researcher to no such study that specifically measured the responsiveness of the hybrid courses to adult learners' needs.

Interconnections between hybrid courses, constructivism, and adult learning principles

This study is designed to seek to understand whether adult learners perceive that hybrid format of course delivery incorporates constructivist learning theory and adult learning needs, as explained by Knowles' theory of andragogy. In other words, the question is whether hybrid courses empower adult learners by allowing them to control the pace, direction, and style of the learning experience. It is obvious from the above discussion that the information landscape in hybrid courses permits users to exercise much discretion in these areas as they move between different components of information, some components offered in face-to-face classroom meetings and others through the Internet course web sites. This learning environment, however, requires on the part of learners autonomy and self-direction, which are elements, as discussed above, of andragogy or adult learning. Hybrid courses are, thus, expected to be more suitable for adult learners, who, according to the theory of andragogy, are capable of being independent in learning and self-directed in pursuing their educational goals. Similarly, in permitting students greater opportunity to construct their own knowledge by incorporating their life experiences and learn with reference to the relevancy of the course content with their lives, hybrid courses promote higher level thinking, rather than lower level thinking, which is more suitable for elementary level classes and in which more teacher guidance is desirable.

The above discussion contends that constructivist principles are embedded in Knowles' theory of andragogy. Accordingly, as Knowles maintains, adult learners, as distinct from younger children, need to know the reason for learning something, prefer experiential learning, approach learning as a problem-solving exercise, and learn best

when the topic has immediate personal value (Knowles, 1984, 1992). For adults, thus, the learning process becomes meaningful when it takes into account their needs for autonomy, self-directedness, relevancy-orientedness, and goal-orientedness. According to Hollis and Madill (2006), the various activities on the course web site promote higher order thinking: asynchronous online forums, reflective practices, case studies, and collaborative projects engage learners, facilitate integration of new information, and encourage reflection and problem-solving (Hollis & Madill, 2006; Meyer, 2002). Hollis and Madill believe that combining face-to-face lectures with course web sites for questions and discussion is consistent with Knowles' theory of andragogy and is congruent with adult learning approaches since it helps to increase the level of student involvement with the learning material, as distinguished from simple rote learning. It can be inferred from this discussion that hybrid courses that combine online learning with face-to-face interaction provide the ideal medium of instruction to develop higher order thinking in adults.

Although researchers have begun to pay attention to hybrid courses, at this point, there is lack of reliable data to assist educationists understand the relationship between adult learning styles—which, as the above discussion establishes, correspond closely with constructivist learning theory approaches--and adult students' satisfaction from hybrid courses. Specifically, no research exists that seeks to understand whether students perceive that hybrid courses take into account their particular learning needs and thereby provide them with satisfaction from the learning process involved in those courses.

Conclusion

Thanks to the advancements in the science of psychology of learning and learning theories derived from this knowledge, educators today know more than ever about the processes of learning. They realize that not everyone learns in the same way, that there are diverse learning styles, and that these learning styles can be addressed for better learning outcomes through thoughtful creation of learning environments. This increase in generalized understanding of the capabilities of instructional technology-enhanced teaching and learning, however, has not actually resulted in the expected better educational outcomes even when the educational institutions have equipped classrooms with state-of-the-art technologies. Among the several reasons for this failure is the fact that research is needed to discover how specific technology-enhanced delivery systems relate to and serve specific learning styles.

This chapter addressed in a generalized way various learning theories and learning styles. It examined the three main schools of thought in learning psychology--behaviorism, constructivism, and humanism--and sought to understand how the learning theories derived from these schools of thought apply to teaching in distance learning, in general, and in hybrid courses, in particular. The goal was to understand relationship between the major learning theories and the efficacy of using technology-enhanced environments in making courses responsive to adult students' learning styles, as explained through constructivist model of learning theory and expressed in adult learning styles elucidated by Knowles' theory of andragogy. In particular, the discussion focused on exploring the congruence of hybrid course delivery mode to create learning environments that support adult learning styles, which, in general, utilize constructivist

and humanistic theories of teaching and learning more than the behaviorist learning theory.

CHAPTER III: METHODOLOGY

Introduction

This chapter is an exposition of the methodology employed in this exploratory, non-experimental, and one sample study, whose focus was to investigate adult students' perception of correspondence between hybrid course delivery mode and learning environments that support adult learning styles, which, as the literature review indicated, predominantly utilize constructivist and humanistic theories of learning. The broad objective of the study was to learn whether adult students perceive that hybrid courses are responsive to their adult learning needs and whether adult students feel satisfied with hybrid courses.

Research Questions

Based on the review of literature and the number of questions raised, the following two research questions were addressed in the study:

1. Do adult students perceive that hybrid courses are responsive to their needs for autonomy, self-directedness, goal-orientedness, and relevancy-orientedness in learning by incorporating adult learning styles in the course design?
2. Do adult students feel satisfied with hybrid courses?

The two purposes of the study were, thus, (1) to determine whether adult students in hybrid courses perceive that the course delivery mode corresponds with their adult learning needs; and (2) to determine adult students' satisfaction level when students learn in hybrid courses.

Methodology

Kuh (2001) pointed out that most higher education research relies upon survey data, such as results of student course evaluation, to infer whether effective learning has taken place. This study also relied on survey data, following the general tradition in higher education research.

The researcher prepared two survey questionnaires, a pre and a post questionnaire. The pre survey contained quantitative questions only, and the post survey contained both qualitative and quantitative questions. The pre questionnaire sought to understand students' perception of the responsiveness of hybrid courses toward four adult learning needs, identified by Knowles in this theory of andragogy, and their expected level of satisfaction from the course being surveyed at the beginning of the semester. The post questionnaire sought to elicit responses with the purpose of understanding students' perception of the responsiveness of hybrid courses toward the four adult learning needs and their satisfaction from the hybrid course close to the end of the semester. A comparison of the aggregate findings from the pre survey with the aggregate findings from the post survey, on the quantitative questions, provided insights into students' perception of hybrid courses concerning each of the four adult learning needs before and after the students took the course and the degree of changes in the perception as the course progressed over the semester. The qualitative questions were included only in the post questionnaire under the rationale that students' actual experience with the course by the end of the semester would enable them to articulate their feelings and perceptions better at that time than at the beginning of the semester.

The questionnaire was initially administered on SurveyMonkey.com to hybrid course students enrolled in the researcher's own university. The hybrid course instructor informed the students enrolled in the available hybrid course prior to the beginning of the course through an email message that they would be invited to participate in a research study. Students then received a pre-notification and an invitation to participate in the study by the researcher. Upon accessing the survey link, respondents entered a case-sensitive password to ensure that only invited responses are collected. At the beginning of the survey, the respondents encountered a screen that presented to them a consent form representing the purposes of the study and information about safeguarding their consent to participate. Participants were instructed to participate with assurance that no personally identifiable information would be collected, that they would be able to withdraw consent at any time, and that all information collected would be anonymous and confidential. They were informed that data downloaded from the secure server by the researcher would be kept for a period of five years, after which time it will be destroyed. To provide informed consent, respondents clicked a button to indicate voluntary consent and continued the survey. To withdraw from the survey, respondents were able to close the browser window at any time.

After the initial administration of the surveys through SurveyMonkey, some issues became apparent, which made it necessary to revise the survey administration procedure. Subsequently, the methodology was revised to include more universities in the area and to survey through in-class administration on hard copy.

The pre-survey was administered during the first class session of the hybrid course semester, and the post-survey was administered during the last class session. The

purpose of the research and rules on anonymity and confidentiality were explained through a written note on the hard copy distributed to the student-participants by the researcher before the students took to survey. The professor informed the student-participants prior to the beginning of the survey of lack of any relationship between the research and the course. The professor also informed the student-participants that the results of the survey, or the responses to the questions, had no link with the grade on the course. The professor also informed the student-participants that the professor had no way of knowing who actually filled in the questionnaire and who did not and who gave what responses because the filled in questionnaires were collected and handed over to the researcher without the professor having any chance to look at them.

Participants

The eligibility of the participants to take this survey was based on the requirement that they be “adults” as per Knowles’ criteria. Knowles’ criteria to regard someone as an adult is that the individual performs roles associated by our culture with adults—i.e. he or she is a worker, spouse, parent, soldier, responsible citizen--and he or she perceives himself or herself to be responsible for his or her own life (Wlodkowski, 1993, p. 5). This study employed these criteria to describe adult learners. The researcher informed the hybrid course instructors of these criteria, and the instructors indicated which hybrid course students met the criteria and could be surveyed. The students in those courses were working adults, often paying for their own education, though in some cases their tuition was paid by their employers, and in some other cases they borrowed money to finance their education. Many of them were responsible for their families, including young children.

The courses surveyed included both graduate and undergraduate courses. Yet, the academic level of the courses taken was not considered to be important for the purposes of this study. Some of the courses were for Instructional Design from the Program for Instructional Technologies, Intercultural Communications from the Communication Skills Program, Visual Literacy from the English Department, and courses from Organizational Studies and Adult and Continuing Education. The smallest number of participants was from Duquesne University and the largest number was from Robert Morris University.

Initially, hybrid courses were surveyed online through SurveyMonkey in one university only. However, the number of respondents from this university was low. Only 22 out of 36 students participated in both pre and the post survey. I, then, contacted professors in other universities, including the University of Pittsburgh and Robert Morris University, and I sought permission to survey students in their hybrid courses. The professors who agreed insisted that I use the hard copy survey method instead of the online survey method for the reason that they wanted to protect the confidentiality of their students. I made slight changes in my pre and post survey questionnaires to make them compatible with the hard copy format. Before continuing to survey with these changes, I sought and received approval from the IRB. I got a total of 96 participants in the pre survey and a total of 73 participants in the post survey.

Research Design

This study was a non-experimental study: it used the available samples in one time and thus, was intended to have one treatment. The design of study was inferential; that is, the study discovered and clarified relationships between the various variables after

collecting both quantitative and qualitative data. A purposeful sample was used. A purposeful sample is one that is selected by the researcher subjectively (McWilliams, 2001, p. 47). The accessible population was of students in the courses that became accessible to the researcher by the time the researcher was ready to administer the survey and in a few subsequent semesters.

The students for this study were not randomly selected since they are the accessible population. This mode of selection, while not random, had some level of randomization in that the researcher had no control over the selection of student population that were made available to her. This form of randomization increased the reliability of the study by removing biases of students' gender and the discipline they were studying in those courses.

Instrument

In designing the research instrument, close attention was given to Knowles' theory of andragogy and constructivism. Questions on the questionnaire sought to elicit responses regarding students' perception of whether hybrid course was responsive toward their need for autonomy, self-directedness, goal-orientedness, and relevancy-orientedness. A second set of questions sought responses regarding students' level of satisfaction with this course.

The instruments for this study, the pre and post survey questionnaires, designed by the researcher, were each separated into five sections: autonomy questions, self-directedness questions, relevancy-orientedness questions, goal-orientedness questions, and satisfaction questions. The questions in the pre survey mirrored those in the post survey since both surveys sought students' responses to questions related to the same

aspects of the course, at the beginning of the semester in the pre survey and at the end of the semester in the post survey. The questions, therefore, employed the use of future tense in the pre survey and past tense in the post survey.

In the pre survey, Questions 1 to 4 were related to students' expectations of the ability of hybrid course learning processes to provide them autonomy in learning. Questions 5 to 8 were related to students' expectations of the ability of hybrid course learning processes to provide them self-directedness in learning. Questions 9 to 12 were related to students' expectations of the ability of hybrid course learning processes to provide adult students relevancy-orientedness in learning. Questions 13 to 16 were related to students' expectations of the ability of hybrid course learning processes to provide adult students goal-orientedness in learning. Questions 17 to 22 were related to students' expectations of the ability of hybrid course learning processes to provide them satisfaction.

Similarly, in the post survey, Questions 1 to 4 were related to students' perceptions of whether hybrid course learning processes provided them autonomy in learning. Questions 5 to 8 were related to students' perceptions of whether hybrid course learning processes provided them self-directedness in learning. Questions 9 to 12 were related to students' perceptions of whether hybrid course learning processes provided them relevancy-orientedness in learning. Questions 13 to 16 were related to students' perceptions of whether the hybrid course learning processes provided them goal-orientedness in learning. Questions 17 to 22 were be related to students' perceptions of their satisfaction from the hybrid course learning processes. Each question generated a response on a likert scale from "Strongly Disagree" to "Strongly Agree" in a range of 1 to

5, with 1 being “Strongly Disagree” and 5 being “Strongly Agree.” As per the researcher’s estimate of the time to fill out the survey, the pre survey would take less than ten minutes to complete, and the post survey might take about twenty minutes to complete.

The post survey questionnaire had additional seven qualitative questions which sought to understand students’ satisfaction from the hybrid course from their open-ended responses. The rationale for including these questions in the post survey, while not including them in the pre survey, was that, by the end of the semester, students would have gathered enough experience of hybrid course to be able to discuss in detail their perceptions of its different aspects and this discussion could assist the researcher to formulate a sound understanding of their perceptions. The qualitative questions were, thus, included to reinforce the responses from quantitative questions and to elucidate students’ responses of quantitative questions.

The following table, Table 1, shows the four variables of adult students’ learning needs—Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness—used in this study. Each variable appears in the table along with the corresponding questions in the survey questionnaires linked to elicit responses about students’ perceptions regarding that variable.

Table 1

Four Variables of Adult Learning Needs, Variable of Satisfaction, and Questions

Corresponding to those Variables in the Pre Survey Questionnaire

Variables and Questions	
Variable	Questions (pre survey)
Autonomy	
Question 1	I expect that the hybrid nature of this course will permit me to actively generate ideas during discussion and writing projects.
Question 2	I expect that in this course, I will have the time to think through, process the information, and incorporate my own feelings/ideas before responding.
Question 3	I expect that the hybrid nature of this course will permit me greater freedom of time to guess, discover, and construct meaning of concepts rather than receive the pre-constructed meaning of ideas from the instructor.
Question 4	I expect that the time flexibility of this hybrid course will provide me autonomy by enabling me to incorporate my feelings and develop ideas important to me in my assignments and projects, although I will still be required to follow general instructions from the teacher.
Self-directedness	
Question 5	I expect that the hybrid nature of this course will permit students to be self-directed in learning the course content by involving students and the instructor in a continual process of reflecting upon course activities and analyzing them.
Question 6	I expect that the time and space flexibility permitted by the hybrid nature of this course will facilitate the development of a community of learners, who will develop ideas in asynchronous assignments and learn from one another, rather than maintain the one-way conversation between the faculty and students.

Question 7	In this course, I expect that the instructor will provide me with the initial guidance and general instructions, leaving me to independently learn the subject matter in sufficient depth to be able to complete the project and helping me where I feel stuck or lost.
Question 8	I expect to be able to take more responsibility for my own learning to meet my own educational needs and satisfy my own learning interests, rather than simply following the teacher's objectives
Relevancy-orientedness	
Question 9	I expect that the hybrid nature of this course will enable me to employ my own experiences and interests when working on my assignments
Question 10	I expect that subject matter and learning will be applicable to my work or other responsibilities.
Question 11	I expect that reflective activities will assist me in examining my habits and biases formed from my past experiences and will move me toward better understanding of information presented.
Question 12	I expect that time and space flexibility in this hybrid course will encourage students to incorporate their relevant life experiences in discussions and other class projects, allowing all of us to learn from one another's life experiences.
Goal-orientedness	
Question 13	I expect that I will have a sense of being actively engaged in learning related to my future career goals and personal learning goals.
Question 14	I expect that clear learning objectives and the organization of content in this course will help me progress toward my learning goals.
Question 15	In this course, I expect that students will supplement the course objectives with their own additional set of personal objectives due to a crossover of work-related problems into the classroom.
Question 16	I expect that project and assignments will be in the form of problems to be solved, will provide a question-oriented environment, and will set the goal of looking for possible

solutions.

Satisfaction

Question 17	I expect that the hybrid nature of this course will enable me to manage my time to my satisfaction.
Question 18	I expect that I will like the structure of the classroom meetings and the reduced class time in a hybrid course.
Question 19	Due to the hybrid nature of this course, I expect that I will have great flexibility in my interactions with faculty and classmates.
Question 20	I expect that the hybrid nature of this course will allow me great flexibility in scheduling the school and employment work.
Question 21	Due to the hybrid nature of this course, I expect that I will be able to set the pace and plan for my own learning.
Question 22	This course will empower me to learn in a manner relevant to my own lifestyle.

Note. The questions in the post survey questionnaire correspond to the questions in the pre survey questionnaire. The difference between the questions in the pre survey and those in the post survey is that the ones in the latter were written in the past tense because they asked students' perception close to the end of the semester regarding their experiences during the semester. Due to the sameness of the questions in two surveys, except for this slight difference, a similar table pertaining to the post survey has not been produced here.

The researcher submitted the survey questions for the determination of their face validity to six people, professors associated with local universities. Based on their comments, the researcher amended the questions for clarity and relevance before using the questionnaires on the research population students.

Face Validity

Prior to administering the pre and post surveys, the researcher determined the face validity of the questions in the questionnaires. Face validity is one of the various ways in which construct validity is determined. “Construct validity is the extent to which a measure is free from systematic error and thus measures what it intends to measure” (Stangor, 2007, p. 100). As a way to determine construct validity, “[f]ace validity refers to the extent to which the measured variable *appears to be* an adequate measure of the conceptual variable” (Stangor, 2007, p. 93) (*emphasis added*).

It is significant to note that scholars have consistently distinguished between actual validity and face validity. For instance, according to Anastasi (1988), “[c]ontent validity should not be confused with face validity. The latter is not validity in the technical sense; it refers to, not to what the test actually measures, but to what it appears superficially to measure. Face validity pertains to whether the test ‘looks valid’ to the examinees who take it, the administrative personnel who decide on its use, and other technically untrained observers” (p. 144). Thus, face validity tells us nothing about what a questionnaire actually measures; it rather refers to how test-takers or survey-takers and other users of the test or survey perceive the appropriateness of the test or survey. To have face validity, each question or item must have a logical link to the variable being

assessed or measured. Also, as Burns (1996) points out, in obtaining face validity, one is asking a non-professional to determine whether the test is valid or not.

In order to assess whether the questions on the pre and post surveys appeared on the face to measure the concepts they were intended to measure, the researcher recruited six experts. Three people had expertise in the content area of education and three others had either taught hybrid courses and/or had experience in designing hybrid courses.

These experts were presented a brief description of the research project and a description of what the researcher was seeking to discover from the questionnaires. The experts were also presented with a form on which they wrote responses to the following three questions with respect to each of the questions/items on the two questionnaires.

1. Does this question/item seem to have a logical link to the variable being assessed?
2. Does this question/item seem as though it will be seen as appropriate by the survey-takers?
3. Does this question/item appear to measure what the researcher seeks to measure?

The experts answered these questions as either a “Yes” or a “No” response. If the response was a “No” for any of the three questions, the expert provided a brief explanation of the response in the space provided on the form. After receiving the responses from the experts, the researcher revised the questions on the pre and post surveys in light of the experts’ feedback.

Research Variables

For this study, the independent variable was the teaching mode, i.e., hybrid course. The dependent variable was students' perception of the congruence between hybrid courses and adult learning needs. A second dependent variable was students' satisfaction from the hybrid course.

Operational Definition for Adult Learning Needs and Adults' Perception and Satisfaction with Hybrid Courses

According to the theory of andragogy, adult learners seek learning environments that support their needs for

1. autonomy,
2. self-directedness,
3. relevancy-orientedness, and
4. goal-orientedness.

These four items, discussed in greater detail in Chapter II in the context of Knowles' theory of andragogy, formed the basis of the measurement of students' perception of whether hybrid courses support adult learning styles. These four variables also formed the basis of questions as to whether adult students are satisfied with hybrid courses.

According to Knowles' theory, adults are satisfied with learning when they find themselves as active participants in the learning processes, with the teacher assuming the role of a facilitator of their learning, rather than of a provider of information and examiner (autonomy); when they are able to pace and plan their own learning (self-directedness); when they are empowered to learn what they feel is relevant to their life

styles and social roles; and when they are actively engaged in the construction of knowledge with proper recognition accorded by learning processes to their individual goals (goal-orientedness). Questions on the survey sought to determine whether or not students felt that the teaching materials and methods took account of their need for autonomy and self-directedness by providing them with opportunities to direct their own learning; permitted them to utilize their life experiences and to factor their social goals into the construction of meaningful knowledge from the information received; and allowed them the perception of the applicability of this knowledge to their lives by linking learning with their individual goals.

Data Collection Procedures

The pre survey consisted of 22 questions that collected information regarding students' expectations of the hybrid course in four areas: autonomy, self-directedness, relevancy orientedness, and goal-orientedness. The post survey consisted of 29 questions that collected information regarding students' perceptions of the hybrid course in the same four areas: autonomy, self-directedness, relevancy orientedness, and goal-orientedness. The questions in the post survey in excess of those in the pre survey were the seven qualitative questions for satisfaction.

To conduct online surveys through the SurveyMonkey, the researcher sought participants' email addresses from the professors teaching the hybrid courses in which the research was to be conducted. The researcher then sent a pre-notification email message to potential participants before issuing the invitation to participate. The pre-notification email was sent to potential respondents prior to the beginning of the semester and five days in advance of the email invitation to participate in the study. The pre-notification

email served the purpose of alerting potential participants to the upcoming study and allowed for invalid email addresses to be removed from the pool. The email messages were sent individually rather than as a bulk mail to avoid preventing the filtering of the message into a spam or junk email folder. The pre-notification email message had the subject line “Doctoral study of hybrid course perceptions announced.”

Five days after the pre-notification, the email invitation to participate was sent to all valid email addresses using the subject line “Doctoral study of hybrid course perceptions.” The invitation email was sent at least three days prior to the first class meeting. The email invitation described the research, assured participants of their privacy, provided a link to the online survey, and a case-sensitive password for accessing the survey. The link to the survey was provided only to the potential respondents in this closed target population.

The SurveyMonkey was programmed to ensure that each respondent completed the survey in one session. To assure total anonymity for protecting the participants, participants’ names were not collected with responses. As per SurveyMonkey’s privacy statement, the program employed multiple layers of security, employed a third-party firm to conduct daily audits of security, and protected data behind the latest in firewall and intrusion prevention technology. SurveyMonkey fulfilled the Safe Harbor requirements in 2004, and thereafter it has been placed on the Safe Harbor list of companies. This placement indicated that SurveyMonkey met the standards of privacy protection and did not collect personally identifiable information. Thus, SurveyMonkey collected IP addresses for system administration and record keeping only. The IP addresses were

analyzed in the aggregate, and no connection was made between the user and his or her computer's IP address. The SurveyMonkey is located at <http://www.surveymonkey.com>.

A follow-up email was sent seven days after the initial invitation to prompt a higher response rate to pre survey. At the end of a two-week period, the pre survey was de-activated and survey data was downloaded from SurveyMonkey to the SPSS program for the Windows statistical software.

Close to the end of the semester, each potential respondent was sent an email message that reminded the individual that he/she had participated in the first stage of the study and asked him/her to participate again. The email message explained the purpose of the study and outlined the process by which they were selected to participate. Again, the post survey remained available on SurveyMonkey.com for a period of two weeks. At the end of those two weeks, the post survey was de-activated and survey data was downloaded from SurveyMonkey to the SPSS program for Windows statistical software.

After the researcher administered the surveys through SurveyMonkey for a period of two semesters, the following issues became apparent, which made it necessary to revise the survey administration procedure. First, it became apparent that the one university originally chosen for the administration of survey did not offer many hybrid courses to adult students. Thus, the amount of data collected was less than optimum for the study. Second, adult students--those generally expected to be shouldering responsibilities in their multiple roles as students, employees, and care-takers in families—often did not take the survey as requested; some took one of the two surveys during the semester.

Subsequently, the researcher revised the research procedure, and she got it approved by the Institutional Review Board of the university in which she was enrolled. The revised procedure included two other universities in the area. The IRBs of these outside universities were not involved. The professors who permitted that their hybrid course classes be surveyed by the researcher, however, were reluctant to disclose their students' email addresses to be included in the SurveyMonkey.com. For this reason, as well as for the reason that SurveyMonkey format had not proven to be a satisfactorily effective method of inducing student respondents to take the survey, subsequent surveys were conducted through hard copy in-class administration under the revised procedures. The pre-surveys were administered during the first class session of the hybrid course semester, and the post-survey was administered during the last class session.

Data Analysis

In this study, data analysis was conducted for quantitative questions by utilizing the SPSS software. Returned survey responses were first visually inspected for missing values, outliers, and improper responses. Surveys were then analyzed for descriptive data including means, standard deviations, ranges, and correlations between the independent variable and the dependent variables.

First, the means of each of the five subscales in the pre test (Autonomy, Self-directedness, Relevancy-orientedness, Goal-orientedness, and Satisfaction) was compared with its corresponding mean in the post test. Doing so provided an understanding of where students' perceptions fell, for each of the subscale, on the likert scale of 1 to 5: "Strongly disagree" (1), "Disagree" (2), "Neutral" (3), "Agree" (4), or "Strongly agree" (5). The score indicated whether students perceived that the hybrid

course corresponded to their adult learning needs. This analysis also permitted an understanding of any change in students' perception from the pre to the post survey, i.e., from the beginning of the semester to the end of the semester.

Secondly, each of the five subscales in the pre test (Autonomy, Self-directedness, Relevancy-orientedness, Goal-orientedness, and Satisfaction) was compared with its corresponding subscale of the same name in the post test using the paired samples *t*-tests. The objective was to statistically determine any change in students' perceptions from the pre test to the post test. Doing so helped understand whether students' perceptions changed from the pre test to the post test in regards to the responsiveness of the hybrid course to their adult learning needs as represented by "Autonomy," "Self-directedness," "Relevancy-orientedness," "Goal-orientedness," and "satisfaction." Any change reflected a change in students' perception from the beginning of the semester to the end of the semester.

To enhance the effectiveness and usefulness of the research instrument, the survey questionnaires, the researcher included both quantitative and qualitative questions in the post survey. Although quantitative questions preponderated in this questionnaire, due to the subjective nature of what the researcher intends to measure, some open-ended questions were utilized in the questionnaire the purposes of qualitative analysis. These questions elicited open-ended responses and thus encouraged detailed responses by the participants instead of the quantitative responses that could be computed with statistical methods only. Responses to qualitative questions were analyzed descriptively. These multiple measurement methods were designed to minimize the effects of students'

knowledge of their participation in a research study which could interfere with the finding of true results.

Duquesne University Institutional Review Board Procedures

Documentation for the Duquesne Institutional Review Board (IRB) was completed before distribution of the survey. The researcher had already completed the National Institute of Health (NIH) training. The application for IRB approval took place after approval of the proposed study by the dissertation committee. At that time, the primary reviewer for the School of Education was contacted and paperwork completed. The IRB process was handled under the “exempt” type of review under the IRB guidelines since the research was to be conducted in “established or commonly accepted educational settings, involving normal educational practices” under Section 46.101 of the Code. As per the examples of studies provided in the IRB’s policies and procedures online manual, a research on regular instructional strategies or a research on the effectiveness of an instructional technique falls under “exempt” review category of the IRB review guidelines. The completed packet for the IRB included a cover page, a transmittal form, an abstract, a copy of the survey instrument, and the NIH training certificate. In addition, consent and assent forms, including an overall description of the purpose and significance of the project, a description of participants’ involvement, assurance of voluntary involvement, assurance of confidentiality, a description of risks and benefits to participants, and signature pages, included.

At a later time, the researcher was obliged to revise her research methodology by extending the scope of the research by surveying students in some other local universities and by changing the procedure from an online survey to a hard-copy in-class survey. The

researcher, at that time, submitted to the IRB board another application, along with all the other materials she had submitted for the original approval process. Research under the amended procedures was conducted after the researcher received approval of the amendment. An IRB personnel, however, told the researcher that she did not require to have a similar approval from the IRBs of other universities to which she would extend the scope of her research.

Expectations

The researcher expected to discover from this study the evidence of adult students' perceptions that the hybrid course delivery mode corresponded with their adult learning needs and that hybrid courses satisfied them. At a broader level, such an evidence is expected to lead to an understanding of the interconnectedness between constructivism, andragogy, and hybrid courses.

Generalizability of Findings

The results of this study indicated the existence of a relationship between the utilization of teaching techniques that take into account individual students' learning styles and students' satisfaction from such learning. This finding can be generalized in teaching and learning environments in general, allowing educators a greater understanding in designing courses for better educational results. This study is of high relevance in distance education, which is increasing in popularity with time and, to expand whose scope, educators are experimenting with various course delivery modes, including hybrid teaching.

Conclusion

This chapter establishes the research methods and details the procedures employed in this study. The research questions are presented along with a description of the research design, method, sample, instruments, and variables. Data collection procedures and data analysis approach for each research question have also been presented in this chapter. Chapter IV presents the results of the study. Chapter V presents conclusions drawn from the results along with recommendations for future research.

CHAPTER IV: RESULTS

Introduction

This chapter presents the results of this study, which analyzes statistics to examine whether adult students perceive that hybrid course correspond with their adult learning styles and whether such courses satisfy adult students by supporting their adult learning styles. This chapter includes a review of the survey design, procedure, and response rate; a review of the data screening methods; the specific questions for which the study sought the answers; research hypotheses; relationships among variables; analysis of the data for each hypothesis; and responses to the qualitative questions (satisfaction questions).

Survey Questionnaire Design, Procedure, and Response Rate

Following the general tradition in higher education research, this study relied upon survey data to infer whether effective learning takes place in partly online teaching through hybrid course designs. The surveys were administered on Survey Monkey in the fall of 2008 and spring of 2009. As stated in Chapter III, the survey administration process was continued on hard copies in the subsequent semesters. Also, as explained in Chapter III, in the subsequent semesters, universities other than the researcher's home university were included. Students of three universities in the western Pennsylvania (referred to as universities A, B, and C, for the purposes of this study) were surveyed.

The number of potential participants was smallest from the University A owing to the fact that the hybrid classes were few and the number of students enrolled in them was small. Also, since these were the first classes surveyed, they were surveyed under the original plan of using SurveyMonkey.com, and, as mentioned above, the number of

participants who responded to both pre and post online surveys was small because some students who responded to the pre survey did not respond to the post survey. In the University B, the researcher was able to make contact with professors who permitted her to survey their classes during the first and the last class session on hard copy questionnaires. Since these students were surveyed in class, the response rate was higher. All students present at those class sessions filled out the questionnaires for the pre and post surveys. The same was true for the University C. The number of respondents was the highest from this university because the researcher was able to contact two professors who permitted her to survey their courses over the course of two semesters.

All courses surveyed at University B and C were undergraduate level courses offered to non-traditional students, while the courses surveyed at University A, the researcher's home institution, included courses offered to students at undergraduate and graduate levels. These distinctions, however, were not stipulated to be significant for the purposes of this study. What was stipulated in the methodology of the study to be significant was the fact that the survey was administrated to adult students of hybrid courses. The researcher informed the hybrid course instructors of these criteria, and the instructors indicated which courses met the criteria and could be surveyed.

Screening the Data

The total number of completed pre surveys was 96, and the total number of completed post surveys was 73. As mentioned above, in the Survey Monkey format, students often took the pre survey but ignored to take the post survey. This fact can be conjectured to be due to greater pressure that is generally upon students to complete their end-of-the-semester assignments and projects, as compared to their relatively less

stressful schedule at the beginning of the semester, however, there was no way to be certain.

The 169 returned surveys were examined and included as cases for use in the study. The researcher did not encounter missing data in the returned surveys. The nature of the analysis, however, required that the pre and the post surveys be paired. For that purpose, when the SPSS files for the pre and the post surveys were merged to form a single data file, the unmatched results of 23 surveys were deleted. Thus, the analysis was performed on a total of 73 cases.

Specific Questions for the Study

The study sought (1) to determine whether students perceive that hybrid courses support their needs for autonomy, self-directedness, and relevancy-orientedness, and (2) to determine whether adult students' satisfaction level is enhanced when they learn through hybrid delivery methods. The study questions, therefore, are the following:

1. Do adult students perceive that hybrid courses are responsive to their needs for autonomy, self-directedness, goal-orientedness, and relevancy-orientedness in learning by incorporating adult learning styles in the course design?
2. Do adult students feel satisfied with hybrid courses?

Research Hypotheses

The study sought to test two hypotheses.

1. Adult students perceive that hybrid courses correspond to adult learning styles as they incorporate adult learning needs in the delivery method.
2. Adult students feel satisfied with hybrid courses.

A comparison of the aggregate means for the subscales in the pre survey with the aggregate means for the subscales in the post survey was done to provide insights into students' perception of hybrid courses before and after taking the course and changes in the perception as the course progressed over the semester. Paired-samples *t*-tests were also conducted to understand whether there was statistically significant or reliable difference between the findings of the pre and the post tests.

Relationship among Subscales

Cronbach's alphas were conducted to examine the reliability and internal consistency for research variables, as presented in Table 2. The alpha coefficients were evaluated according to the guidelines established by George and Mallery (2003) whereby > .9 Excellent, > .8 Good, > .7 Acceptable, > .6 Questionable, > .5 Poor, < .5 Unacceptable. The examination suggests that all the subscales except for goal-orientedness had an acceptable alpha.

Table 2

Cronbach's Alphas for Research Variables

Research Variables	A	Items
Autonomy	.752	4
Self-directedness	.764	4
Relevancy-orientedness	.730	4
Goal-orientedness	.331	4
Satisfaction	.868	6

Exploratory analyses

Ten Pearson r correlations were conducted to explore if statistically significant relationships exist at pre survey among Autonomy, Self-directedness, Relevancy-orientedness, Goal-orientedness, and Satisfaction. Of the 10 correlations, all of them were positively, statistically significantly correlated, indicating that as one variable increased (or decreased) the other variable increased (or decreased). Autonomy was positively correlated with Self-Directedness ($r = .418, p < .001$), Relevancy Orientedness ($r = .625, p < .001$), Goal-Orientedness ($r = .519, p < .001$), and Satisfaction ($r = .449, p < .001$). Self-Directedness was positively correlated with Relevancy Orientedness, ($r = .610, p < .001$) Goal-Orientedness ($r = .554, p < .001$), and Satisfaction ($r = .508, p < .001$). Relevancy Orientedness was positively correlated with Goal-Orientedness ($r = .638, p < .001$) and Satisfaction ($r = .557, p < .001$). Goal-Orientedness was positively correlated with Satisfaction ($r = .524, p < .001$).

According to Cohen (1988), the correlation coefficient is used to determine the strength of the relationship, where coefficients between .10 and .29 represent a small association; coefficients between .30 and .49 represent a medium association; and coefficients above .50 represent a large association or relationship. The results of the correlations are presented in Table 3.

Table 3

Pearson Correlations among Autonomy, Self-Directedness, Relevancy Orientedness, Goal Orientedness and Satisfaction

	Autonomy	Self-Directedness	Relevancy-Orientedness	Goal-Orientedness
Autonomy	--			
Self-Directedness	.418**	--		
Relevancy-Orientedness	.625**	.610**	--	
Goal-Orientedness	.519**	.554**	.638**	--
Satisfaction	.449**	.508**	.557**	.524**

Note. ** $p < .001$.

Ten additional Pearson r correlations were conducted to explore if statistically significant relationships exist at post survey among autonomy, self-directedness, relevancy-orientedness, goal-orientedness, and satisfaction. Of the 10 correlations, all of them were positively, statistically significantly correlated, indicating that as one variable increased (or decreased) the other variable increased (or decreased). Autonomy was positively correlated with Self-Directedness ($r = .751, p < .001$), Relevancy Orientedness ($r = .650, p < .001$), Goal-Orientedness ($r = .533, p < .001$), and Satisfaction ($r = .670, p < .001$). Self-Directedness was positively correlated with Relevancy Orientedness, ($r = .795, p < .001$) Goal-Orientedness ($r = .695, p < .001$), and Satisfaction ($r = .718, p < .001$). Relevancy Orientedness was positively correlated with Goal-Orientedness ($r = .735, p < .001$) and Satisfaction ($r = .711, p < .001$). Goal-Orientedness was positively correlated with Satisfaction ($r = .621, p < .001$).

According to Cohen (1988), the correlation coefficient is used to determine the strength of the relationship, where coefficients between .10 and .29 represent a small association; coefficients between .30 and .49 represent a medium association; and coefficients above .50 represent a large association or relationship. The results of the correlations are presented in Table 4.

Table 4

Pearson Correlations among Autonomy, Self-Directedness, Relevancy Orientedness, Goal Orientedness and Satisfaction

	Autonomy	Self-Directedness	Relevancy Orientedness	Goal-Orientedness
Autonomy	--			
Self-Directedness	.751**	--		
Relevancy Orientedness	.650**	.795**	--	
Goal-Orientedness	.533**	.695**	.735**	--
Satisfaction	.670**	.718**	.711**	.621**

Note. ** $p < .001$.

Research Question 1

RQ1: Do adult students perceive that hybrid courses are responsive to their needs for Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness in learning by incorporating adult learning styles in the course design?

The first hypothesis stated that adult students perceive that hybrid courses correspond to adult learning styles as they incorporate adult learning needs in the delivery method. To investigate this hypothesis, Research Question 1 was examined.

As a first step, the aggregated mean of each of the four subscales (Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness) gained from the pre and the post test was examined. The examination indicated the level of perception on the likert scale of adult students of the correspondence of the hybrid course with their four adult learning styles. Then, each mean for a subscale in the pre survey was compared with its corresponding subscale in the post survey. The comparison indicated whether the students perceived that the hybrid course corresponded with their adult learn needs and whether that perception underwent any change from the pre to the post survey. Table 5 shows these comparisons.

Table 5

Means and Standard Deviations of the Four Subscales in the Pre and Posttest Survey

Subscales	Pre survey		Post survey	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Autonomy	4.29	0.50	4.26	0.62
Self-directedness	4.15	0.54	4.08	0.64
Relevancy-orientedness	4.22	0.50	4.19	0.62
Goal-orientedness	4.05	0.69	3.85	0.76

The following observations were made when the means of the four subscales (Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness) were compared between the score received on the pre survey with those received on the post survey.

1. A comparison of the means of the subscale of Autonomy in the pre and post surveys indicated that both at the beginning and close to the end of the semester students perceived that the hybrid course was highly and positively responsive to their adult learning need of Autonomy in learning, falling between “agree” and “strongly agree” on the likert scale. The level of positive perception of Autonomy in the post survey dropped by a negligible degree of 0.03.
2. A comparison of the means of the subscale of Self-directedness in the pre and post surveys indicated that both at the beginning and at the end of the semester students perceived that the hybrid course was highly and positively responsive to their adult learning need of Self-directedness in learning, falling between “agree” and “strongly agree” on the likert scale. The level of positive perception of Self-directedness in the post survey, however, was lower, by 0.15, than that in the post survey.
3. A comparison of the means of the subscale of Relevancy-orientedness in the pre and post surveys indicated that both at the beginning and close to the end of the semester students perceived that the hybrid course was highly and positively responsive to their adult learning need of the relevancy of the

course to their lives, falling between “agree” and “strongly agree” on the likert scale. The level of positive perception of relevancy of the course in the post survey, however, dropped by a negligible degree of 0.03.

4. A comparison of the means of the subscale of Goal-orientedness in the pre and post

surveys indicates that both at the beginning and close to the end of the semester student perceived that the hybrid course was highly related to their learning goals. The level of positive perception in this subscale, however, dropped from the pre to the post survey to a higher degree than in any other subscale. The difference was 0.20. Thus, the mean of the pre survey indicated that students “agreed” or “strongly agreed” that the course was related to their learning goals. However, in the post survey, the mean fell between “neutral” and “agree” on the likert scale.

These observations warrant confidence that students perceived that the hybrid course corresponded to their adult learning needs. There was negligible change in this perception from the pre to the post survey.

To further analyze research question one, four paired samples *t*-tests were conducted to determine if there were statistically significant differences on the four subscales from pre survey to post survey. A significance level of $\alpha = .05$ was chosen for the analysis.

The results of the paired samples *t*-test on Autonomy pre survey and post survey was not statistically significant, $t(72) = 0.38, p = .701, d = 0.05, 95\% \text{ CI } [-0.14, 0.21]$. There is not a statistically significant difference on Autonomy pre survey scores ($M =$

4.29, $SD = 0.50$) and Autonomy post survey scores ($M = 4.26$, $SD = 0.62$). The result of the paired samples t -test on Self-directedness pre survey and post survey was not statistically significant, $t(72) = 0.78$, $p = .441$, $d = 0.12$, 95% CI [-0.11, 0.26]. There is not a statistically significant difference on Self-directedness pre survey scores ($M = 4.15$, $SD = 0.54$) and Self-directedness post survey scores ($M = 4.08$, $SD = 0.64$). The result of the paired samples t -test on Relevancy-orientedness pre survey and post survey was not statistically significant, $t(72) = 0.40$, $p = .689$, $d = 0.05$, 95% CI [-0.14, 0.20]. There is not a statistically significant difference on Relevancy-orientedness pre survey scores ($M = 4.22$, $SD = 0.50$) and Relevancy-orientedness post survey scores ($M = 4.19$, $SD = 0.62$). The result of the paired samples t -test on Goal-orientedness pre survey and post survey was not statistically significant, $t(72) = 1.82$, $p = .073$, $d = 0.26$, 95% CI [-0.02, 0.44]. There is not a statistically significant difference on Goal-orientedness pre survey scores ($M = 4.05$, $SD = 0.64$) and Goal-orientedness post survey scores ($M = 3.84$, $SD = 0.76$).

These results suggest that students' perceptions regarding the correspondence of the hybrid course with their adult learning needs of autonomy, self-directedness, relevancy-orientedness, and goal-orientedness did not change from what they were at beginning of the semester to what they were close to the end of the semester. Specifically, the results suggest that in the first class session, students had a certain level of perception regarding the congruence of the hybrid course with their adult learning needs and this perception did not change when they were about to finish the course. One may conclude that the paired samples t -tests failed to reveal a statistically reliable or significant difference between the pairs of mean values. Thus, the results of the paired

samples *t*-tests were not significant, suggesting that significant differences do not exist on Autonomy, Self-directedness, Goal-orientedness, and Relevancy-orientedness in learning through hybrid courses.

Table 6 presents the results of the paired samples *t*-tests on Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness in hybrid learning (pre survey vs. post survey). Figure 1 presents means and standard deviations for Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness in hybrid learning (pretest vs. posttest).

Table 6

Paired Samples t-test on Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness by Incorporating Adult Learning Styles

Variable	Pretest		Posttest		<i>t</i> (72)	<i>p</i>	Cohen's
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>d</i>
Autonomy	4.29	0.50	4.26	0.62	0.38	.701	0.05
Self-directedness	4.15	0.54	4.08	0.64	0.78	.441	0.12
Relevancy-orientedness	4.22	0.50	4.19	0.62	0.40	.689	0.05
Goal-orientedness	4.05	0.69	3.85	0.76	1.82	.073	0.26

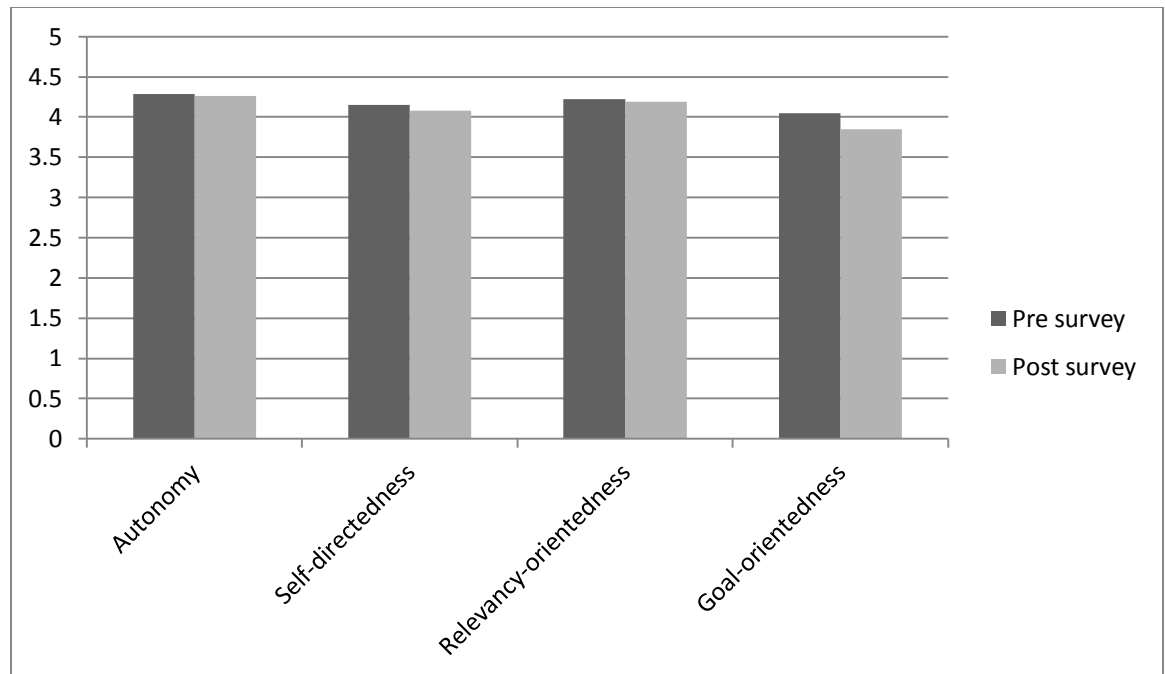


Figure 1. Column chart on mean scores for Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness.

Research Question 2

RQ2: Do adult students feel satisfied with hybrid courses?

The second research hypothesis stated that adult students feel satisfied with hybrid courses. To investigate this hypothesis and to examine Research Question Two, again a two step analysis was conducted.

First, the aggregated means of the subscale of Satisfaction gained from the pre and the post survey were individually examined. In the same step, the mean in the pre survey was compared with the mean in the post survey. The examination and comparison indicated whether the students were satisfied with the hybrid course and whether that perception underwent any change from the pre to the post survey. The means and standard deviations of Satisfaction scores pre and post survey are presented in Table 7.

Table 7

Means and Standard Deviation of the Subscale of Satisfaction in the Pre and Posttest Survey

Subscale	Pretest		Posttest	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Satisfaction	4.20	0.68	4.28	0.66

As indicated by Table 7, for the subscale of Satisfaction, the average response on the pre survey was 4.20, and on the post survey it was 4.28. The mean score indicated responses between “agree” and “strongly agree” on the likert scale for both the pre and post survey, indicating that the respondents anticipated a high level of satisfaction from learning in the hybrid course environment and that they also experienced high level of satisfaction from taking the course. Unlike in the cases of other subscales, the respondents were more certain (a difference of approximately 0.08) on the post survey responses of their satisfaction. As seen in the results related to the first research question regarding the comparison of means of other subscales, we can conclude that students were more satisfied even when their perception of the congruence of hybrid course with their adult learning needs dropped a little at the end of the semester.

To further analyze research question two, a paired samples *t*-test was conducted to assess if adult students are satisfied with hybrid courses (pre survey vs. post survey). A significance level of ($\alpha = .05$) was chosen for the analysis.

The results of the *t*-test showed that there was not a statistically significant difference between the pre and post survey responses on Satisfaction, $t(72) = -0.83, p = .409, d = 0.12, 95\% \text{ CI } [-0.29, 0.12]$. There is not a statistically significant difference on Satisfaction pre survey scores ($M = 4.20, SD = 0.68$) and Satisfaction post survey scores ($M = 4.28, SD = 0.66$). The result of the paired samples *t*-test is summarized in Table 8. Figure 2 presents a column graph for satisfaction in learning by incorporating adult learning styles (pretest vs. posttest).

Table 8

Paired Samples t-test on Satisfaction from Hybrid Courses Incorporating Adult Learning Styles

Variable	Pre survey		Post survey		<i>t</i> (73)	<i>p</i>	Cohen's
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>d</i>
Satisfaction	4.20	0.68	4.28	0.66	-0.83	.409	0.12

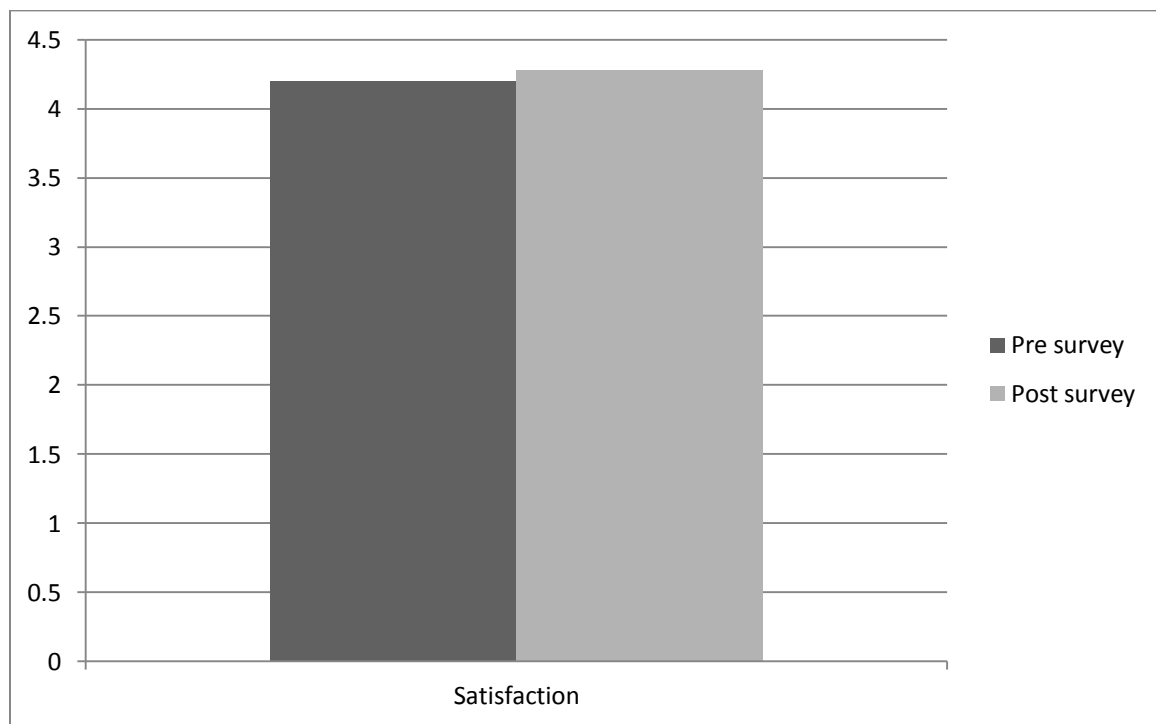


Figure 2. Column chart for mean Satisfaction scores.

Responses to the qualitative questions: Satisfaction questions

Satisfaction and other responsibilities (Question 1)

Of the 42 responses to this question, 41 were positive. One response was negative. Thus, an overwhelming majority of respondents wrote that their level of satisfaction with the hybrid course was high, taking into account other responsibilities of their adult life, such as work, home, and children. They found that hybrid course afforded flexibility of time and place to enable them to complete their multiple responsibilities.

Satisfaction with the structure of the course (Question 2)

More respondents (31 out of 39) found the hybrid course structure to be loose, rather than tight. Some students found the structure to be tight. An overwhelming number of respondents indicated that the course was well-planned, regardless of whether they found the structure to be loose or tight. No respondent found the structure of the hybrid course to be ill-planned.

Satisfaction and flexibility of the course (Question 3)

All respondents (100%) indicated that they found the hybrid course structure to be flexible. Respondents also indicated that this flexibility permitted them to successfully schedule their work and home responsibilities.

Satisfaction and Engagement with the Course (Question 4)

For this question, 100% responses indicated satisfaction. Students' responses ranged along a continuum regarding their level of engagement in the hybrid course. Yet, those who responded that their engagement in the course was high were significantly higher in number than those who characterized their engagement to be low. Those who

found that their engagement level was moderate, medium, or average were highest in number. No student wrote that the level of engagement was inadequate or unsatisfactory. Almost all students, regardless of the level of engagement that they perceived in the course, indicated their high satisfaction with their level of engagement.

Satisfaction and Relevance to Goals and Life (Question 5)

Most respondents (approximately 85%) found this hybrid course relevant to their future goals. They indicated its relevance to their educational goals as well as career goals, particularly because it enabled them to continue to education while carrying on a busy schedule in employment and family and to graduate faster by taking hybrid courses than through traditional college programs. Based on these reasons, these students found the program relevant to their lives. Some students, however, did not find the course relevant to their future goals and life. One student pointed out that “I think I will see the relevance more as time passes.” Another student responded “I really do not,” meaning that he/she found no relevance of this hybrid course to his/her future goals.

Satisfaction and Students’ Ability to Incorporate Life Experiences (Question 6)

Almost all (approximately 90%) responses were favorable toward the hybrid course. The respondents wrote that they were able to incorporate their life experiences in the hybrid course collaborative projects.

Satisfaction in General (Question 7)

All respondents (100%) indicated that their perceptions of learning in a hybrid course were positive. To convey their high level approval of the hybrid course, they used words and phrases such as “love it,” “best course ever,” “fantastic,” “very good.”

Conclusion

Chapter IV examined the results of the study analyzing whether adult students perceive that hybrid courses correspond to their adult learning styles and whether such courses enhance adult students' level of satisfaction by supporting their adult learning styles. More specifically, the study has sought (1) to determine whether students perceive that hybrid courses support their needs for autonomy, self-directedness, goal-orientedness, and relevancy-orientedness, and (2) to determine whether adult students' satisfaction level is enhanced when they learn through hybrid delivery methods.

To accomplish the purpose of this study, pre and post survey quantitative data was aggregated and compared. The results indicated statistically insignificant differences between scores for each of the five subscales in the pre and the post surveys, suggesting that the students' perceptions did not change from the pre to the post survey. Results also suggested that the scores were high between "agree" and "strongly agree" on the likert scale, indicating students' high level of perception of the congruence of the hybrid course with their adult learning needs and their high level of satisfaction with the course.

Although the differences between the means of the subscales were not statistically significant, some differences were recorded nonetheless. In the subscales of Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness each, there was a small drop from the pre to the post scale. The reasons are not known as they are outside the scope of the study. Regardless of the reason—slight disillusionment, annoyance at having to complete the survey at the end of the semester which is generally understood to be a stressful time for students with approaching deadlines for final assignments, or any

other reason—what is interesting to note is that the level of students' satisfaction with the hybrid course rose from the beginning to the end of the semester.

CHAPTER V: DISCUSSION

Introduction

This chapter presents a summary of the study which examined the congruence of hybrid courses with adult learning needs, specifically with adult learning needs for autonomy, self-directedness, relevancy, and goal-orientedness in the course design. This chapter also presents a summary of the findings regarding the level of adult students' satisfaction with hybrid courses. In addition, this chapter presents the findings as they relate to literature, and important conclusions. Finally, the chapter provides recommendations for further research and implications for action.

Summary of the Study

The use of instructional technologies in higher education is a relatively new trend in the past few decades (Potashnik & Capper, 1998, p. 42; Jones, 2004). Its main objectives have been two-fold: to improve the quality of education and to gain more students in colleges and universities (Brunnemer, 2002).

Advancement in instructional technologies and their increased employment has invigorated distance education. In contrast with traditional learning in classroom settings, and also in contrast with earlier formats of distance learning, which limited to learning through correspondence, distance education today is much expanded and diverse in study formats and course design. Today's distance education, thus, more than ever before, attracts adult students, who, otherwise, on account of their multiple home and employment responsibilities, would not be able to participate in formal learning processes offered by institutions of higher learning. Distance learning has, thus, multiplied educational possibilities for adults across the world.

Currently, distance education is offered by colleges and universities through courses in technologically-enhanced formats like fully online, web-enhanced, and hybrid (Olson, 2003, p.1). The effectiveness of these methods in achieving educational objectives, however, has not been extensively studied. Research in hybrid teaching and learning, in particular, is limited (Farahani, 2003, p.1). As the literature review indicated, greater theoretical knowledge in the area of learning styles today, greater advancement in instructional technologies, and increased concerns and efforts on the part of educationists to improve adult learning so as to promote higher order thinking among adults make it reasonable to expect that the pedagogical approaches driven by the new instructional technologies employed in the design and delivery of such courses support adult learning styles. There is, however, paucity of research to indicate whether such is in fact the case. Although some research exists to lend credence to a general understanding that adults prefer hybrid courses to traditional, face-to-face courses, the researcher did not locate any research that studies the congruence between constructive principles, the theory of andragogy, and hybrid courses. Moreover, the researcher did not locate through literature review and research any previous study that sought to understand adult students' perceptions of the congruence of hybrid courses with their adult learning needs and their satisfaction from learning through hybrid courses.

The advancement in instructional technologies has coincided with discoveries of learning theories and improvements in knowledge of learning styles. This knowledge affirms that not everyone learns in the same way and that teaching students in ways that are congruent with their learning styles produces better learning results.

Learning theories, originate from three major schools of thought in educational psychology: behaviorism, cognitivism, and humanism. While the focus of behaviorism is to influence behavior through environmental stimuli—methods rewarding and punishing in their original, basic form—to improve learning, cognitivism regards the learner's active participation in the learning process as vital to his or her success in the acquisition of knowledge from an instructional situation. Humanism, unlike behaviorism, does not occupy a place of contrast with cognitivism in educational theories; rather, it complements cognitivism with its basic idea that the purpose of education is to develop "self-actualizing persons" (Patterson, 1973, p. 22) and that humanistic education is a lifelong process (Valett, 1977, p. 12). Both cognitivism and humanism regard human beings as capable of learning throughout their lives as long as proper methods of teaching are employed to take into account their learning needs.

Of these three schools of thought, theories emerging from cognitivism are of particular relevance to this study. Cognitive-constructivist philosophy, one of the two major branches of cognitive psychology, in particular, forms the basis of this study of adult learners as it grants a significant role to learners in the process of their learning (Munro & Rice-Munro, 2004, p.28). Cognitive-constructivist psychological approaches effectively support adult learning since they correspond more closely to adult learning needs than any other approach forwarded by educational psychology. Learning theories based on the cognitive-constructivist philosophy are more closely tied to adult learning needs than any other theories.

Constructivism, a theory of learning especially pertinent to this study, is derived from cognitive-constructivist philosophy. This study is premised on an understanding

that adult learning methods are infused with constructivist learning theory and that adult learning styles are congruent with learning styles advanced by constructivist learning theory. Constructivism stands for the learning that “occurs most effectively when the individual actively processes the information in a way that is meaningful to him/her, and not simply and passively incorporates information unchanged from its original form” (Carlson, 2003). Teachers following a constructivist perspective base their instruction on what the students already know as a foundation (Duhaney & Duhaney, 2000) and, thus, the theory applies more naturally to adults than to children since adults enrich their learning environments with their previous knowledge and experiences.

The idea that different learners learn differently stimulated a number of theories of learning styles that recognize the important roles that social, psychological, emotional, environmental, and physical factors play in developing learning styles (Simms and Simms, 1995; Cauduro, 2004). The idea also suggested important implications for both teaching and learning as it recognized that teaching that accommodates a student’s style of learning can result in better learning and better attitudes toward learning and in higher levels of academic achievements (Irvine & York, 1995). Among one of many theories regarding learning styles and teaching approaches is Knowles’ theory of andragogy, a theory of adult learning.

According to this theory, adults learn differently from children, and, for that reason, an adult learning setup should be distinct from a corresponding setup for children. As the theory advances a definition of “andragogy,” it emphasizes a difference between adult education, or “andragogy” and children’s education, or “pedagogy.” Knowles’ theory presents five crucial assumptions about the characteristic of adult learners, as

distinct from child learners. First, as a person matures, his self concept moves from one of being a dependent personality toward one of being a self-directed human being. Second, as a person matures, he accumulates a growing reservoir of experience that becomes an increasing resource for learning. Third, as a person matures, his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles. Fourth, as a person matures, his time perspective changes from one of postponed application of knowledge to immediacy of application, and, accordingly, his orientation toward learning shifts from one of subject-centeredness to one of problem-centredness. Fifth, as a person matures, his or her motivation to learn becomes internal (Knowles 1984, p. 12).

Knowles' theory of andragogy suggests that the success of adult learning depends on addressing the particular needs of adult learners, the needs related to their independent and assimilative modes of thinking, richness of their personal experiences that comes to bear upon their learning and constructing of knowledge, and their expectation that instructional methods will utilize interpersonal interactions to facilitate higher order thinking, as opposed to the traditional way of teaching and learning through knowledge reproduction. Adult learning needs, thus, require learner-centered teaching methods, advocate multiple perspectives, seek acceptance of varying interpretations of reality in the instructional context, and emphasize on higher order thinking and contextual construction of knowledge by the learner. Scholars, thus, have come to recognize that adult learners seek from learning environments a feeling of autonomy in the learning processes and a feeling that they are approaching learning as self-directed learners

through content that is relevant to their lives and that is related to their future goals (Brewer, DeJonge, & Stout, 2001, pp. 11-18).

In line with this trend in scholarly writing, and premising its focus of exploration on ideas advanced by Knowles' theory of andragogy, this research stipulated that adult learning needs are those of autonomy, self-directedness, relevancy-orientedness, and goal-orientedness. This study in general sought to understand the interconnectedness between constructivism, andragogy and adult learning through hybrid courses. In this effort, the study specifically examined whether students perceive that their adult learning needs are being met when they learn through hybrid courses and whether adult students feel satisfied when they learn through hybrid courses. It was hoped that the findings would give an insight into whether hybrid courses deliver learning environments that afford personalization of learning by allowing learners to incorporate their experiences and needs. In other words, it was hoped that the findings would permit an understanding of whether hybrid courses incorporate the constructivist learning theory and the theory of andragogy in instructional delivery methods.

The results of the study confirmed that adult students perceived that hybrid courses were highly congruent with their adult learning needs of autonomy, self-directedness, relevancy-orientedness, and goal-orientedness. The results also confirmed that the adult students were satisfied with the hybrid course, expressing anticipation of satisfaction from the course at the beginning of the semester and expressing satisfaction at the end of the semester.

Findings Related to Literature

First Research Hypothesis

It was concluded from the result of the analysis of students' responses in the pre and the post surveys that students perceived that the hybrid courses corresponded with their adult learning needs of autonomy, self-directedness, relevancy-orientedness, and goal-orientedness. The results also indicated that this perception did not undergo any statistically significant change from the beginning of the semester to the end of the semester. Specifically, the results indicated that in the first class session, students had a perception of high level of congruence of the hybrid course with their adult learning needs and the perception did not change when they were about to finish the course.

It is evident from literature that principles of adult learning derived from Knowles' theory of andragogy and constructivism have significant intersecting features, and this research indicated that learners taking hybrid course perceive these feature to be incorporated in such courses. Specifically, the research literature indicates that adults learn better when learning environments support their needs to be autonomous and self-directed learners and when the learning is relevant to their lives and their future goals. These adult learning needs are constructivist in character. The results of this research, specifically, adult students' high level of perception that the hybrid course in which they were enrolled supported their adult learning needs of autonomy, self-directedness, relevancy-orientedness, and goal-orientedness suggest that hybrid courses incorporate constructivist approaches. The results, thus, indicate an interconnectedness between constructivism, theory of andragogy, and hybrid courses.

Second Research Hypothesis

The second research hypothesis investigated to discover whether adult students feel satisfied with hybrid courses. The results of the statistical analysis indicated that students anticipated a high level of satisfaction from the hybrid course at the beginning of the semester and they expressed a high level of satisfaction from the hybrid course close to the end of the semester. That is, students remained satisfied with the hybrid course as much at the end of the semester as they were at the beginning of the semester.

These results reinforce the findings made in connection with the first research hypothesis. As indicated above, adult students enrolled in hybrid courses perceived, both at the beginning and by the end of the semester, that the hybrid course met their adult learning needs of autonomy, self-directedness, relevancy-orientedness, and goal-orientedness. In such a case, consistent with Knowles' theory of andragogy, it was expected that adult students would feel satisfied with the course. The findings of this research in connection with the second research hypothesis suggested that this expectation was well-founded.

Together, the results of the two research hypotheses indicated that adult students expected that the hybrid course would meet their adult learning needs at the beginning of the semester and the students expressed their satisfaction from the course at that early point in the semester. Moreover, the results showed that their experience during the hybrid course learning remained positive and that they expressed high level of satisfaction from the course close to its end. Again, the results indicate an interconnectedness between constructivism, adult learning needs, and hybrid courses.

While additional research is needed, the results of this study suggest that students enroll in hybrid courses with perceptions that these courses will accommodate their learning needs. Such perceptions may engender positive attitudes toward learning, which in turn may have a positive learning influence. Moreover, the results indicate that student had positive expectations (anticipated a high level of satisfaction) about hybrid courses and these expectations remained constant for the duration of a course. This further suggests that characteristics of the hybrid learning are perceived as accommodating to learner needs, and, perhaps, because of this perception, students anticipate being satisfied. This too can engender positive learning benefits. Thus, students enter hybrid courses with positive expectations about courses as well as perceptions that the instructional methods, delivery, and format, among other things, will support their learning. This is important because violations of these perceptions may be problematical to learners and instructors. For examples, a hybrid course taught using solely instructivist methods or courses that are perceived as unaccommodating of learner needs would be counter to student perceptions and this would likely exert a negative influence on learning.

Limitations

The study had several limitations in terms of research methodology and data collection from respondents. Many limitations also arise from the time and geographical constraints that are typical in academic research of this sort.

First, this was a one-time study, with the study period restricted to a limited number of courses within a few semesters. The participants of the survey questionnaires, as explained above, were an accessible population.

Second, the survey questionnaires formulated questions based on the catalog provided by Knowles of adult learning needs as expressed in adult learning styles. The research variables were derived from this catalog. The researcher did not try to increase or decrease the list of variables by considering any other scholars' ideas.

Third, in performing the SPSS analysis of paired-samples *t*-test, the researcher eliminated from the dataset a number of pre survey cases that were unmatched by post surveys. It is possible that those deleted cases might have provided some more or different insights had the researcher been able to count them in for the purpose of performing the analysis.

Fourth, another consideration about the eliminated cases, that is the cases in the pre survey that were unmatched by the post surveys, is that the researcher assumed that the student- respondents who took the pre survey but did not take the post survey were under the usual stress at the end of the semester that many students undergo due to the usual urgency to complete a number of assignment at that time. However, there is no way for the researcher to ascertain that such was in fact the case. It is possible, though not highly likely, that the students who responded to the pre survey but did not fill out the post survey were simply dissatisfied with the course and did not want to express their dissatisfaction.

Fifth, another consideration about the eliminated cases from the pre surveys is that they remained unmatched by post surveys because students dropped out of the course due to either their personal reasons or due to dissatisfaction with the course. Again, there is no way for the researcher to ascertain if such was the case.

Sixth, the student-respondents' articulated responses as to their perceptions of the congruence between the hybrid course and their adult learning needs, as well as their satisfaction with the course, have been accepted. In other words, their responses were accepted as statements of facts.

Seventh, the definition of "adult" is based on an understanding of what adulthood entails: adults are those who often shoulder multiple roles and responsibilities in life of family, studies, and employment, tasks that are usually expected when one becomes an adult through advancement in chronological age. This definition, however, ignores other considerations, such as the level of emotional development and maturity and cultural differences, for instance.

Recommendations for Further Research

This study is also to provide a model for future studies of the same nature. Other studies following it in the future might be able to revise the methodology established for this study to remove the limitations pointed out above and to receive results that expand and reinforce the basic insights gained from this limited study and achieve greater authoritative application of those results.

This study is expected to provide guidance for future innovations in educational delivery methods and adult literacy instruction. The findings from this study are expected to be beneficial to universities that offer hybrid courses as it provides insights into the level of success that can be expected when adult students enroll in hybrid courses. Universities and colleges may improve their hybrid courses based on the results of this study.

This study is one of the first to examine the use of constructivist theories in hybrid courses by isolating variables from scholarly research on constructivism and testing their relevance in the course design. This study is also one of the first that has sought to examine whether adult students perceive that hybrid courses correspond to their adult learning needs, as represented by those variables--Autonomy, Self-directedness, Relevancy-orientedness, and Goal-orientedness-- derived from the existing research on constructivism. Similarly, this study is one of the first to examine the level of adult students' perception of satisfaction from hybrid courses, incorporating adult learning needs, represented by variables that are derived from existing research on constructivism. The research, however, is limited in scope and applicability due to limitations in methodology and data collection procedures, as pointed out above. There is, thus, enormous room to expand this research in the future through expansion of data collection scope, designing a longer-period research, and covering a larger geographical range, for instance. Similarly, more and different techniques and analytical methods may afford greater insights.

Implications for Action

As continuous education is becoming an established way of life for greater number of adults, it is recommended that further research should lead educational institutions to play a greater role in accommodating the learning needs of people from all different ages and backgrounds. An implication of this study is that there must be a movement to align beliefs gained from existing research in constructivism and constructivist practices with the design and procedures actually employed in courses for adult students, namely, hybrid courses. This endeavor, however, does not have to be

limited to hybrid courses and may cover other courses and other learning activities designed for adult education. To address such a need, universities must expand their research activities undertaken in this area by students and faculty.

Institutions of higher learning have an important part in promoting the development of personal goals and competencies for adult learners and to equip them with self-study skills for succeeding in courses that require autonomy and self-direction in furthering their education. In some cases, organizational structure may need to bring changes beyond the authority of individual faculty member to help promote such learning, for instance, by promoting course flexibility collaborative study, and self-instruction.

There may be a number of other implications of this study pertaining to practicing educators in higher educations. At the most general level, the idea to which this study leads is that adults learn in ways that are different from those in which children learn, and this idea implies that educators should take different teaching approaches when teaching adults than when teaching children. Since, as discussed above, adults seek education that is relevant to their lives and enroll for higher education classes in pursuit of their future goals, it is clear that they seek knowledge which they would like to be able to apply. Similarly, this study affirms that adult learners have a need for personalization and individualization of instruction. These goals obviously mean that the teacher is confronted with a difficult choice of teaching strategies. While the teacher's job obligation is generally to teach a class consisting of a large group of students, the teacher also has to satisfy each learner's distinct and individual needs. Thus, the teacher needs to balance a group approach of teaching with individualized approach teaching, and this

balance, if not achieved prudently, may result in students' dissatisfaction with the instruction and the teacher's professional dissatisfaction with his or her work. It is, therefore, imperative to draw thoughtful inferences from this study for teaching in the higher education.

An important implication for teaching adults is that teachers, while remaining within the scope of the course, should include a range of content materials and assignments that are capable of engaging students with varying interests and life experiences. The objective of such course content should be to elicit individualized interpretations and responses drawn from varying contexts and experiences. The main challenge for the teacher in such an endeavor may be to understand the range of interests of students in the class, a challenge that the teacher alone might not be able to meet at the time of preparing the course syllabus, which is usually before the teacher actually directly interacts with the students. In this endeavor, the administration of the institution of higher education can be helpful by providing to the teacher demographic data and other pertinent information, such as academic and professional background of each student as well as students' articulated or demonstrated future goals which these students might be eager to meet by enrolling in the course. Another challenge, though not as difficult as this one, could be to for the teacher to facilitate learning in ways that are permissive enough to admit varying viewpoints and yet restrictive enough to keep the discussion and responses from wandering off too widely from the course objectives and scope. Similarly, while such courses should permit sharing of experiences and personal narratives for gaining insights into the larger significances of academic materials being studied, students should have the sense of an instructor monitoring the time spent on such

exercises, with in-built purposeful flexibility, for structure and discipline purposes. Of course, the expertise with which an optimum balance is reached by the teacher between such flexibility and discipline will define professional excellence in adult teaching.

In this study, the emphasis was on “students’ perceptions.” However, adult education, in general, incorporates objectives that are broader than seeking students’ satisfaction from the courses in which they enroll. Adult education, particularly the kind pursued to meet particular objectives of the workplace for skill acquisition by the workforce, for instance, requires measuring success from the perspective of the employer as well. Research needs to be extended to understand how institutions of higher education can make courses satisfactory for adult students not only by making courses relevant to adult students’ educational goals but also by making them productive from the perspective of the employers who need to have a workforce with a satisfactory level of skills and habits of thinking.

In this regard, it is also important to point out that, according to Brookfield (1986), much greater definitional clarity of the term “learning” is needed; it is particularly important to clarify whether “learning” refers to a behavioral change or cognitive development. While this research of limited scope and duration accepted according to Knowles’ theory of andragogy that adult learning is solely a feature of people’s chronological age, such an understanding implies that an advancement of one’s chronological age inevitably results in one’s cognitive development. This understanding, however, ignores other factors that come into play with advancing age and which require learning to be embedded in adults’ social and physical situations. As Jarvis maintains, adult learning is a socially embedded process, which takes place in the social context, and

leaving the task of explaining adult education primarily to psychologists and academicians might not be enough to understand what learning entails for an adult person as it ignores many other social dimensions that might influence learning (Jarvis, 1987, p.8). Also, it is a common understanding that physical state of people changes with aging and the impact of this change also needs to be studied. Similarly, the present research makes no distinction between adult learning that takes place in institutions of higher learning and in other settings of learning, for instance, workplaces, social communities, religious communities, recreational communities. An implication of this study is, thus, to bring wholeness to our understanding of interconnections between learning and adult needs by expanding its scope and procedures to include several other dimensions of learning.

Yet another implication of this study is that there should be a movement in the direction of studying cognitive processes that are experienced by adult learners. A purely academic research as this present one in adult learning needs to be complemented with and integrated with hard sciences research on adult development and adult cognition to acquire a better understanding of how adults learn and what kind educational setup might enjoy a better likelihood to satisfy their need to learn.

Just as human beings are embedded in their social surroundings, their personalities and behavioral and cognitive processes cannot be considered to be unconnected with their cultures. There should be a movement to take the findings from this study further by encouraging other studies on the influence of culture on adult learning in an effort to have greater understanding of processes that can lead to better adult learning. In this regard, cross-cultural perspectives are needed in research to

understand inter-cultural differences between learners beyond chronological age, such as the differences of culture, class, ethnicity, life experiences, and gender among adults, which may have significant influence on how adults learn (Ross-Gordon, 1991).

Finally, further research should explore the relationship between adult learning needs in general and learning needs in other stages of the lifespan (Tuijnman & Kamp, 1992).

Conclusions

This study concludes that students' responses indicated that students perceived that the hybrid course was congruent to their adult learning needs of autonomy, self-directedness, relevancy-orientedness, and goal-orientedness. The responses also indicated that the hybrid course afforded student-respondents satisfaction as it incorporated adult learning needs in the course design and delivery methods. Even though students' perception of the congruence of the hybrid course with their adult learning needs underwent a slight downward change from the pre to the post test, student-respondents' perception remained positive from the beginning to the end of the semester. Moreover, students' overall satisfaction level from the course increased from the beginning of the semester to the end of the semester. The scores indicated adult learners' satisfaction was greater at the end of the semester than at the beginning of the semester, that is, their satisfaction was enhanced when they actually learned through methods that they perceived to have incorporated their adult learning needs, even though there was slight disillusionment regarding the congruence of individual adult learning need with the hybrid course by the end of the semester.

At a broader level, this study finds that students enrolled in hybrid courses perceive these courses to incorporate elements of constructivist learning and that students positively respond to these courses. Since students enrolled in hybrid courses are expected to be students with special needs of adult learners, this study finds that there is interconnectedness between constructivism, andragogy, and hybrid courses. Specifically, hybrid courses incorporate elements of constructivist learning methods that correspond with adult learning needs.

A still broader conclusion of this study is that hybrid courses deliver learning environments that afford personalization of learning by allowing learners to incorporate their experiences and needs and that such learning environments enhance adult students' satisfaction from learning.

The findings of this research provide evidence that constructivist and andragogical principles embedded in hybrid courses satisfy adult students as these students perceive the congruence between such courses and their own learning needs and styles. Expanding the application of these results to other technology-enhanced courses, the results of this research also suggest that an approach to learning for adult students that takes account of the theory of constructivism and adult learning principles is likely to draw adult students toward learning and help them achieve their educational goals. As the literature reviewed indicated, technology has already become capable of creating constructivist learning environments for adult students, i.e., adult learners who are expected to be self-motivated and self-directed and are goal and relevancy conscious in learning. Thus, it is logical to deduce that mindful use of technology and conscious

regard to adult students' constructivist and andragogical needs should make possible better learning outcomes

Yet, after completing this study, it is clear that there is room for further research and additional development of understanding of how various factors, cognitive, social, cultural, affect adult students' learning through courses that incorporate constructivist practices relating to adult learning styles and needs.

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APPENDIX A

IRB Approval



DUQUESNE UNIVERSITY

Office of Research

424 RANGOS BUILDING ♦ PITTSBURGH PA 15282-0202

Dr. Paul Richer
Chair, IRB-Human Subjects
Human Subjects Administrator
Office of Research
Phone (412) 396-6326 Fax (412) 396-5176
e-mail: richer@duq.edu

July 19, 2008

**Re: Adult students' perception of the congruence of hybrid courses with their adult learning needs
(Protocol # 08-78)**

Ms. Rubina Iqbal
706 Virginia Avenue
Pittsburgh PA 15282

Dear Ms. Iqbal:

Thank you for submitting your research proposal to the IRB.

Based on the review of IRB representative, Dr. David Delmonico, and my own review, your study is approved as **Exempt** based on 45-Code of Federal Regulations-46.101.b.1 regarding research involving standard educational practices and also under 45-CFR-46.101.b.2 regarding anonymous surveys. Subjects' names will not appear on surveys they return to you.

Enclosed is the consent form stamped with approval and one-year expiration date. You should use the stamped form for copies that you distribute or show on the web site.

The approval is based on the submitted protocol. If you wish to proceed with changes to the research, you must first submit an amendment and receive approval from this office. In addition, if any unanticipated problems arise in reference to human subjects, you should notify the IRB chair immediately. In all correspondence, please refer to the protocol number shown after the title above.

Once the study is complete, please provide our office with a short summary (one page) of your results for our records.

Thank you for contributing to Duquesne's research endeavors.

Sincerely yours,

Paul Richer, Ph.D.

C: Dr. David Delmonico
Dr. Gibbs Kanyongo
IRB Records



DUQUESNE UNIVERSITY

600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: ADULT STUDENTS' PERCEPTION OF THE CONGRUENCE OF HYBRID COURSES WITH THEIR ADULT LEARNING NEEDS AND THEIR SATISFACTION FROM HYBRID COURSES

]

INVESTIGATOR: Rubina Iqbal, 706 Virginia Ave. Pittsburgh, PA, 15211;
(412) 488-8953; iqbal_rubina@hotmail.com

ADVISOR: (if applicable:) Gibbs, Y. Kanyongo, Ph.D.
Department of Foundation and Leadership
Duquesne University, Pittsburgh, PA 15282
(412)-396-5190

SOURCE OF SUPPORT: This study is being performed as partial fulfillment of the requirements for the doctoral degree in Instructional Technology (EdDIT) at Duquesne University, Pittsburgh

PURPOSE: You are being asked to participate in a research project entitled "Adult Students' Perception of the Congruence of Hybrid Courses with their Adult Learning Needs and their Satisfaction from Hybrid Courses." This project is designed to examine whether adult students perceive that hybrid courses correspond with their adult learning styles/needs and whether hybrid students feel satisfaction from learning through hybrid course delivery modes. With your consent, you will be surveyed twice in this hybrid course, once at the beginning of the semester and then at the end of the semester, which will be through the Internet survey tool SurveyMonkey.com.

As per the researcher's estimate at this time, the pre survey will take less than ten minutes to complete, and the post survey might take about twenty minutes to complete.

These are the only requests that will be made of you.

DEFINITION: Hybrid courses: In hybrid courses, teachers combine two different teaching modes: face-to-face classroom learning and distance education. Hybrid courses, thus, provide students the ability to complete some work from the convenience of their homes or offices through the course web site as well as the opportunity to meet in the classroom for reduced time to interact directly with the classmates and the teacher.

Duquesne University
Institutional Review Board
Approval Date: July 19, 2008
Expiration Date: July 19, 2009

RISKS AND BENEFITS:	There are no risks greater than those encountered in everyday life.
COMPENSATION:	Participation in the project will require no monetary cost to you.
CONFIDENTIALITY:	The participants of this study will remain anonymous. Your signatures will not be required. In the online surveys, you will be asked to click a button to indicate your voluntary participation. No identity will be made in the data analysis. Your responses will only appear in statistical data summaries.
RIGHT TO WITHDRAW:	You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time.
SUMMARY OF RESULTS:	A summary of the results of this research will be supplied to you, at no cost, upon request.
VOLUNTARY CONSENT:	<p>I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.</p> <p>I understand that should I have any further questions about my participation in this study, I may call Rubina Iqbal, at 412-488-8953 or igbal_rubina@hotmail.com, Gibbs. Y. Kanyongo, Ph.D. at (412)-396-5190, and Dr. Paul Richer, Chair of the Duquesne University Institutional Review Board 412-396-6326).</p>

Rubina Iqbal
 Researcher's Signature

5/22/08
 Date

APPENDIX B

IRB Approval for the Proposed Amendment



DUQUESNE UNIVERSITY

INSTITUTIONAL REVIEW BOARD

424 RANGOS BUILDING ♦ PITTSBURGH, PA 15282-0202

Dr. Paul Richer
Chair, Institutional Review Board
Human Protections Administrator
Duquesne University
email: richer@duq.edu
web site: <http://www2.duq.edu/research/policies.cfm#human>
412-396-6326

January 16, 2009

Ms. Rubina Iqbal
706 Virginia Avenue
Pittsburgh PA 15211

Re: Adult students' perception of the congruence of hybrid courses with their adult learning needs and their satisfaction from hybrid courses AMENDMENT (Protocol # 08-78)

Dear Ms. Iqbal:

We have received the proposed amendment to your ongoing study.

You propose to administer the survey instrument in hard copies in addition to administering it on-line. This requires a new consent since the original was on-line only. The contents of the survey and also the consent form are identical in the hard copy to those originally approved for the web.

The amendments are approved. The study as a whole remains approved with the stipulations put forth in the original approval letter. Because approval was granted under 45CFR46.101.b.2, data must remain anonymous. Consequently, since you ask subjects to sign consent forms, those forms can not be paired with survey responses.

Along with this letter you will receive the new consent form stamped with approval and expiration date. Note that the expiration date is based on the original approval. In correspondence with our office, please refer to the study using the protocol number, shown above after the study's title.

Sincerely yours,

Paul Richer, Ph.D.

C: Dr. David Delmonico
Dr. Gibbs Kenyongo
IRB Records



DUQUESNE UNIVERSITY

600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: ADULT STUDENTS' PERCEPTION OF THE CONGRUENCE OF HYBRID COURSES WITH THEIR ADULT LEARNING NEEDS AND THEIR SATISFACTION FROM HYBRID COURSES

INVESTIGATOR: Rubina Iqbal, 706 Virginia Ave. Pittsburgh, PA, 15211;
(412) 488-8953; iqbal_rubina@hotmail.com

ADVISOR: (if applicable:) Gibbs. Y. Kanyongo, Ph.D.
Department of Foundation and Leadership
Duquesne University, Pittsburgh, PA 15282
(412)-396-5190

SOURCE OF SUPPORT: This study is being performed as partial fulfillment of the requirements for the doctoral degree in Instructional Technology (EdDIT) at Duquesne University, Pittsburgh

PURPOSE: You are being asked to participate in a research project entitled "Adult Students' Perception of the Congruence of Hybrid Courses with their Adult Learning Needs and their Satisfaction from Hybrid Courses." This project is designed to examine whether adult students perceive that hybrid courses correspond with their adult learning styles/needs and whether hybrid students feel satisfaction from learning through hybrid course delivery modes. With your consent, you will be surveyed twice in this hybrid course, once at the beginning of the semester and then at the end of the semester, which will be through the Internet survey tool SurveyMonkey.com or on paper and in-class for others.

As per the researcher's estimate at this time, the pre survey will take less than ten minutes to complete, and the post survey might take about twenty minutes to complete.

These are the only requests that will be made of you.

DEFINITION: Hybrid courses: In hybrid courses, teachers combine two different teaching modes: face-to-face classroom learning and distance education. Hybrid courses, thus, provide students the ability to complete some work from the convenience of their homes or offices through the course web site as well as the opportunity to meet in the classroom for reduced time to interact directly with the classmates and the teacher.

Duquesne University
Institutional Review Board
Protocol #08-78
Original Approval Date: July 19, 2008
Amended Approval: January 16, 2009
Renewal Date: July 19, 2009

RISKS AND BENEFITS: There are no risks greater than those encountered in everyday life.

COMPENSATION: Participation in the project will require no monetary cost to you.

CONFIDENTIALITY: The participants of this study will remain anonymous. Your signatures will not be required. In the online surveys, you will be asked to click a button to indicate your voluntary participation. No identity will be made in the data analysis. Your responses will only appear in statistical data summaries.

RIGHT TO WITHDRAW: You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time.

SUMMARY OF RESULTS: A summary of the results of this research will be supplied to you, at no cost, upon request.

VOLUNTARY CONSENT: I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may call Rubina Iqbal, at 412-488-8953 or iqbal_rubina@hotmail.com, Gibbs. Y. Kanyongo, Ph.D. at (412)-396-5190, and Dr. Paul Richer, Chair of the Duquesne University Institutional Review Board 412-396-6326).

<p>_____ Participant's Signature</p>	<p style="text-align: right;">5/22/08 _____ Date</p>
<p style="text-align: center;">Rubina Iqbal</p> <p>_____ Researcher's Signature</p>	<p style="text-align: right;">5/22/08 _____ Date</p>

APPENDIX C

Pre-notification

Pre-notification

Title: "Doctoral study of hybrid course perceptions announced."

Summer 2008

Dear [*name of respondent*]:

As a student registered for a hybrid course at Duquesne University, you will soon be invited to participate in a research project entitled "Adult students perception of the congruence of hybrid courses with their adult learning needs and their satisfaction from hybrid courses."

This project is designed to examine whether adult students in hybrid courses perceive that hybrid courses correspond with their adult learning styles and needs and whether adult students feel satisfied with hybrid courses. I am conducting this study as part of my doctoral dissertation research at Duquesne University. The study is being conducted by under the supervision of Gibbs Kanyango, Ph.D., from Duquesne University, Department of Foundations and Leadership. Your invitation to participate will arrive in one week via email.

Your participation in this study will make a valuable contribution to the body of research about the congruence of hybrid courses, the courses involving both face-to-face and internet content delivery modes, to adult learning needs. As researchers gain more understanding of the effectiveness of this instructional technique, identification of areas for improved instructional development can be determined. Your participation in this research survey may help to accomplish these goals and thus may benefit future generations of educators and learners.

This project has been approved by the Duquesne University Human Subjects Institutional Review Board on XXX, 2008. Your responses will be anonymous to the researchers. . If you have any questions, you may contact Rubina Iqbal at iqbal_rubina@hotmail.com. You may also Dr. Gibbs Kanyango, Ph.D., at 412-396-5190. I hope that you will consider participating in the upcoming survey. Again, your invitation to participate will arrive via email in one week.

Sincerely,

Rubina Iqbal
Duquesne University

APPENDIX D

Invitation to Participate in a Study

Invitation to participate in the study
Title: "Doctoral study of hybrid course perceptions"
Summer 2008

Dear [*name of respondent*]:

As a student in this hybrid course--that is a course in which the course contents will be delivered to you partly in face-to-face meetings and partly online and you will participate in the learning process via both modes--you are invited to participate in a research project entitled "Adult Students' Perception of the Congruence of Hybrid Courses with their Adult Learning Needs and Their Satisfaction from Hybrid Courses."

This project is designed to examine whether adult students perceive that hybrid courses correspond with their adult learning styles/needs and whether hybrid students feel satisfaction from learning through hybrid course delivery modes more than they do in fully fact-to-face and/or fully online courses. The study is being conducted by under the supervision of Gibbs Kanyongo, Ph.D., from Duquesne University, Department of Instruction and Leadership. With your consent, you will be surveyed twice in this hybrid course, once at the beginning of the semester and then at the end of the semester, which may be either in-class or via email.

Your participation in this study will make a valuable contribution to the body of research about the significance of hybrid courses in making education accessible and satisfactory for adult students, those with multiple home and work responsibilities. As researchers gain more understanding of students' perceptions of the congruence between the hybrid course delivery mode and their satisfaction with the learning processes in hybrid courses, identification of areas for improved development in education can be determined. Your participation in this research survey may help to accomplish these goals and thus may benefit future generations of educators. The results of this study will provide a model for future studies and guidance for future innovations in educational delivery methods and adult instruction. The findings will be beneficial to universities that offer hybrid courses by providing feedback to educations as to adult students' perception regarding hybrid courses.

This project has been approved by the Duquesne University Human Subjects Institutional Review Board on XXX, 2006. If you have any questions, you may contact Rubina Iqbal at iqbal_rubina@hotmail.com. You may also contact Gibbs Kanyongo, Ph.D., at 412-396-5190. I hope that you will consider participating in the upcoming survey.

Sincerely,

Rubina Iqbal
Ph.D. candidate for Program for Instructional Technology
Duquesne University

APPENDIX E

Reminder Email to Participate in the Study

Dear Hybrid Course Student:

This is a gentle reminder to participate in a research study.

Please recall that you received a pre-notification and an invitation to participate in a study. I requested your participation in a research project entitled "Adult Students' Perception of the Congruence of Hybrid Courses with their Adult Learning Needs and Their Satisfaction from Hybrid Courses." You were selected because of your enrollment in this hybrid course and because of your status as an adult student.

This project is designed to examine whether adult students perceive that hybrid courses correspond with their adult learning styles/needs and whether hybrid students feel satisfaction from learning through hybrid course delivery modes more than they do in fully fact-to-face and/or fully online courses. The study is being conducted under the supervision of Gibbs Kanyongo, Ph.D., from Duquesne University, Department of Instruction and Leadership.

Your participation in this study will make a valuable contribution to the body of research about the congruence of hybrid courses, the courses involving both face-to-face and internet content delivery modes, to adult learning needs. As researchers gain more understanding of the effectiveness of this instructional technique, identification of areas for improved instructional development can be determined. Your participation in this research survey may help to accomplish these goals and thus may benefit future generations of educators and learners.

Here is a link to the survey:

http://www.surveymonkey.com/s.aspx?sm=UAyJhoDpepj5QWeA7uXHkw_3d_3d

This link is uniquely tied to this survey and your email address, please do not forward this message.

Thanks for your participation!

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.

http://www.surveymonkey.com/optout.aspx?sm=UAyJhoDpepj5QWeA7uXHkw_3d_3d

Rubina Iqbal
Ph.D. Candidate
Program for Instructional Technologies
Duquesne University

APPENDIX F

Reminder email to participate in post survey

Dear Duquesne University Student in a Hybrid Course:

If you recall, you responded to a pre survey at the beginning of this semester. The pre survey was part of the research that I am conducting in fulfillment of the requirement for my Ph.D. program. I thank you very much for responding to that pre survey. At that time, I requested your participation in the post survey, to be taken close to the end of the semester. I am now writing to request you to participate in the post survey as well.

I am opening the post survey for your participation. Your responses would be greatly appreciated. Here is a link to the survey:

http://www.surveymonkey.com/s.aspx?sm=446pMf5999KDIjg0WxMSKA_3d_3d

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.

http://www.surveymonkey.com/optout.aspx?sm=446pMf5999KDIjg0WxMSKA_3d_3d

Rubina Iqbal

Ph.D. Candidate

Program for Instructional Technologies

Duquesne University

Iqbal649@duq.edu

Iqbal_rubina@hotmail.com

APPENDIX G

Face Validity Comments by Six Experts for Changes in the Original Survey Questions

Face Validity Comments by Six Experts for Changes in the Original Survey Questions

Autonomy Questions

1. There was one comment with no particular objection. Other five experts made no objection. I did not change this question.
2. There was no objection and no comment. I did not change this question.
3. There was one comment. Accordingly, I needed to clarify why a hybrid class would permit a student “to guess, discover, and construct meanings of concepts.” I added the phrase “greater freedom of time” to convey the difference from an on-ground course.
4. There were two comments. The original question could be misunderstood to mean that a hybrid course gives freedom from instructions. I expanded the question to clarify.

Self-directedness Questions

1. There was one objection that the connection between self-directedness and collaboration was not clear. I took out the word “collaboratively.”
2. There were two comments. I needed to clarify what I meant by “community of learners.” Also, I clarified that in, a hybrid course, time and space flexibility is expected to permit the development of a community of learners.
3. The original question gave the impression that students would receive only the initial guidance and not much instruction after that. I took out the word “only”

and added that students will receive further help also from the teacher when they feel the need.

4. There were two comments. Accordingly, I needed to clarify what I meant by the phrase “I will take more responsibility.” I expanded the question to provide the clarification.

Relevancy-orientedness Questions

1. No comments/objections. No change.
2. No comments/objections. No change.
3. No comments/objections. No change.
4. There was one comment. I needed to clarify why students would be able to incorporate their relevant life experiences more in a hybrid course class work than in an on-ground course. I added the terms “time and space flexibility” to make the clarification.

Goal-orientedness Questions

1. There was one comment. Accordingly, I clarified what I meant by the term “future goals.” I re-phrased it as “future learning goals.”
2. No comments/objections. No change.
3. I re-worded this question to prevent misunderstanding that the course objectives in the hybrid course would be totally different from students’ own objectives. I re-worded to indicate that there might be a crossover between course objectives and students’ supplemental objectives.

4. There was one comment with no specific objection. I did not change this question.

Satisfaction Questions

In this section, there were originally nine questions. I took out three questions as the experts' comments indicated that they did not fit in this section. I realized that that was true. Now I have six questions in this section.

Qualitative Questions

1. No comments/objections. No change.
2. I expanded this question to clarify what I mean by the phrase "perception of the structure and organization."
3. No comments/objections. No change.
4. I expanded this question to clarify the term "engagement" and provided clarification that engagement could be understood as "high or low level of engagement."
5. No comments/objections. No change.
6. No comments/objections. No change.
7. I added the phrase "in general" to indicate the non-specific nature of the expected response.

APPENDIX H

Pre Survey Questionnaire

Administered at the beginning of the semester

Pre Survey for Hybrid Course Students

Instructions to survey-takers

Thank you for agreeing to participate in the study. By completing this survey, you are providing evidence of your informed consent in the study

For the purposes of this research, a hybrid course is defined as follows:

Hybrid course: Students and the teacher meet in the classroom at specified times and location for

part of the course work. The remaining course content is delivered online. Thus, in a hybrid course, students' interactions among themselves and with the teacher take place both in the traditional classroom and online through the course web site.

The following questions ask for your perceptions of and expectations from this hybrid course at the beginning of the semester. Please respond to all the questions. You will be given a similar questionnaire close to the end of this course.

AUTONOMY QUESTIONS

1. I expect that the hybrid nature of this course will permit me to actively generate ideas during discussion and writing projects.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

2. I expect that in this course, I will have the time to think through, process the information, and incorporate my own feelings/ideas before responding.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

3. I expect that the hybrid nature of this course will permit me greater freedom of time to guess, discover, and construct meaning of concepts rather than receive the pre-constructed meaning of ideas from the instructor.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

4. I expect that the time flexibility of this hybrid course will provide me autonomy by enabling me to incorporate my feelings and develop ideas

important to me in my assignments and projects, although I will still be required to follow general instructions from the teacher.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

SELF-DIRECTEDNESS QUESTIONS

5. I expect that the hybrid nature of this course will permit students to be self-directed in learning the course content by involving students and the instructor in a continual process of reflecting upon course activities and analyzing them.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

6. I expect that the time and space flexibility permitted by the hybrid nature of this course will facilitate the development of a community of learners, who will develop ideas in asynchronous assignments and learn from one another, rather than maintain the one-way conversation between the faculty and students.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

7. In this course, I expect that the instructor will provide me with the initial guidance and general instructions, leaving me to independently learn the subject matter in sufficient depth to be able to complete the project and helping me where I feel stuck or lost.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

8. I expect to be able to take more responsibility for my own learning to meet my own educational needs and satisfy my own learning interests, rather than simply following the teacher's objectives.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

RELEVANCY-ORIENTEDNESS QUESTIONS

9. I expect that the hybrid nature of this course will enable me to employ my own experiences and interests when working on my assignments.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

10. In this course, I expect that subject matter and learning will be applicable to my work or other responsibilities.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

11. In this course, I expect that reflective activities will assist me in examining my habits and biases formed from my past experiences and will move me toward better understanding of information presented.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

12. I expect that time and space flexibility in this hybrid course will encourage students to incorporate their relevant life experiences in discussions and other class projects, allowing all of us to learn from one another's life experiences.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

GOAL-ORIENTEDNESS QUESTIONS

13. In this course, I expect that I will have a sense of being actively engaged in learning related to my future career goals and personal learning goals.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

14. I expect that clear learning objectives and the organization of content in this course will help me progress toward my learning goals.

Strongly Disagree	Agree	Neutral	Agree	Strongly
-------------------	-------	---------	-------	----------

1 2 3 4 5

15. In this course, I expect that students will supplement the course objectives with their own additional set of personal objectives due to a crossover of work-related problems into the classroom.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

16. In this course, I expect that project and assignments will be in the form of problems to be solved, will provide a question-oriented environment, and will set the goal of looking for possible solutions.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

SATISFACTION QUESTIONS

17. I expect that the hybrid nature of this course will enable me to manage my time to my satisfaction.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

18. I expect that I will like the structure of the classroom meetings and the reduced class time in a hybrid course.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

19. Due to the hybrid nature of this course, I expect that I will have great flexibility in my interactions with faculty and classmates.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

20. I expect that the hybrid nature of this course will allow me great flexibility in scheduling the school and employment work.					
Agree	Strongly Disagree	Agree	Neutral	Agree	Strongly
	1	2	3	4	5
21. Due to the hybrid nature of this course, I expect that I will be able to set the pace and plan for my own learning.					
Agree	Strongly Disagree	Agree	Neutral	Agree	Strongly
	1	2	3	4	5
22. This course will empower me to learn in a manner relevant to my own lifestyle.					
Agree	Strongly Disagree	Agree	Neutral	Agree	Strongly
	1	2	3	4	5

APPENDIX I

Post Survey Questionnaire

Given Close to the End of the Semester

Post Survey for Hybrid Course Students

Instructions to survey takers

Thank you for agreeing to participate in the study. By completing this survey you are providing evidence of your informed consent in the study

For the purposes of this hybrid course are defined as follows:

Hybrid course: Students and the teacher meet in the classroom at specified times and location

for part of the course work. The remaining course content is delivered online. Thus, in a hybrid course, students' interactions among themselves and with the teacher take place both in the traditional classroom and online through the course web site.

The following questions ask for your perceptions of and expectations from this hybrid course at the end of the semester. Please respond to all the questions.

AUTONOMY QUESTIONS

1. This course permitted me to actively generate ideas during discussion and writing projects.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

2. In this course, I had the time to think through, process the information, and incorporate my own feelings/ideas before responding.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

3. This course permitted me greater freedom of time to guess, discover, and construct meaning of concepts rather than receive the pre-constructed meaning of ideas from the instructor.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

4. The time flexibility of this course provided me autonomy by enabling me to incorporate my feelings and develop ideas important to me in my assignments and projects, although I still was required to follow general instructions from the teacher.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

SELF-DIRECTEDNESS QUESTIONS

5. This course permitted students to be self-directed in learning the course content by involving students and the instructor in a continual process of reflecting upon course activities and analyzing them.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

6. The time and space flexibility permitted by this hybrid nature facilitated the development of a community of learners, who developed ideas in asynchronous assignments and learned from one another, rather than maintain the one-way conversation between the faculty and students.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

7. In this course, the instructor provided me with the initial guidance, leaving me to independently learn the subject matter in sufficient depth to be able to complete the project and helping me where I felt stuck or lost.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

8. In this course, I was able to take more responsibility for my own learning to meet my own educational needs and satisfy my own learning interests, rather than simply following the teacher's objectives.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

RELEVANCY-ORIENTEDNESS QUESTIONS

9. In this course, I was able to employ my own experiences and interests when working on my assignments.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

10. In this course, the subject matter and learning were applicable to my work or other responsibilities.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

11. In this course, reflective activities assisted me in examining my habits and biases formed from my past experiences and moved me toward better understanding of the information presented.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

12. In this course, the time and space flexibility encouraged students to incorporate their relevant life experiences in discussions and other class projects, allowing all of us to learn from one another's life experiences.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

GOAL-ORIENTEDNESS QUESTIONS

13. In this course, I had a sense of being actively engaged in learning related to my future goals and personal learning goals.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

14. Clear learning objectives and the organization of content in this course helped me progress toward my learning goals.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

15. In this course, students supplemented the course objectives with their own additional set of personal objectives due to a crossover of work-related problems into the classroom.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

16. In this course, project and assignments were in the form of problems to be solved, provided a question-oriented environment, and set the goal of looking for possible solutions.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

SATISFACTION QUESTIONS

17. The hybrid nature of this course enabled me to manage my time to my satisfaction.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

18. I liked the structure of the classroom meetings and the reduced class time in this hybrid course.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

19. Due to the hybrid nature of this course, I had a great flexibility in my interactions with faculty and classmates.

	Strongly Disagree	Agree	Neutral	Agree	Strongly
Agree	1	2	3	4	5

20. This course allowed great flexibility in scheduling the school and employment work.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

21. Due to the hybrid nature of this course, I was able to set the pace and plan for my own learning.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

22. This course empowered me to learn in a manner relevant to my own lifestyle.

Strongly Disagree	Agree	Neutral	Agree	Strongly
1	2	3	4	5

QUALITATIVE QUESTIONS

Please answer and explain the following questions in as much detail as possible, giving appropriate examples where relevant:

1. What is your overall satisfaction level with a hybrid course, taking into account other responsibilities of your adult life, such as work, home, and children?
2. Do you perceive that the structure/organization of this hybrid course is tight or loose, well-planned or ill-planned? Explain your answer.
3. How do you perceive a hybrid course regarding flexibility of scheduling your work and home responsibilities? Explain your answer.
4. How do you perceive the level of your engagement with the course content in a hybrid course, in terms of high level of low level of engagement? Explain your answer. (Consider interaction and collaboration with your peers in class projects)
5. How do you perceive the relevance of the hybrid course with your future goals? Explain your answer.
6. Were you able to incorporate your life experiences in your hybrid course collaborative projects, such as online discussions and face-to-face paper presentations? Explain your answer.
7. In general, what are your perceptions of learning in a hybrid course?

APPENDIX J

Responses to the Qualitative Questions

Satisfaction Questions

Responses to the qualitative questions

(Satisfaction questions)

Seven qualitative questions were added to the post test. This part of the post test questionnaire was added as an additional tool to understand the satisfaction level of students of hybrid courses. The questions appeared only in the post survey, and not in the pre survey. The idea was to ask questions when students have already taken the course and were in a position to articulate their feelings qualitatively.

The number of responses for qualitative questions was less than the number of responses to quantitative questions. The reason was that some students completed only the quantitative questions section and left the qualitative questions section of the post questionnaire blank. Some responded to some qualitative questions, but did not respond to all of them. Thus there were more responses to the questions appearing first and less number of responses to the questions appearing later on the questionnaire.

All responses to each question were arranged together to enable the researcher to see them all at once. Responses that appeared as “no response,” “N/A,” or as blank spaces were eliminated from this arrangement, keeping only the explicit responses for the purpose of this analysis.

Question 1 asked, “What is your overall satisfaction level with a hybrid course, taking into account other responsibilities of your adult life, such as work, home and children?”

There were 42 responses to this question. Of the 42 responses, 41 were positive, indicating respondents’ satisfaction with the hybrid course. Thus, 41 students responded

to this question expressing that they were satisfied with hybrid courses taking into account respondents' other responsibilities. One response was negative.

Of the 41 positive responses, the following ten responses, though positive did not provide reasons for their satisfaction with the hybrid course. They simply indicated their satisfaction without pointing out any specific way in which hybrid course provided them with satisfaction.

1. Best class ever.
2. Very satisfied with course.
3. It was very helpful!
4. Very satisfied.
5. I am very satisfied.
6. Very satisfied.
7. Satisfied. Had to adjust a few things.
8. Loved it.
9. I enjoy hybrid courses as a whole.
10. Better than expected.

The remaining 31 responses gave some insight into the reasons for students' satisfaction with the hybrid course. The reasons for students' satisfaction included their perception that hybrid courses allow for advanced planning, allowed ample time to accomplish other responsibilities, permitted scheduling flexibility, and made taking classes possible despite their busy schedule. Students also expressed their approval of the

flexible course structure of the class and the convenience of completing the tasks at their own pace.

The following are the responses received for this question.

1. Satisfied. Objectives allowed for advanced planning
2. Most hybrid courses fit in well
3. Very good, provides ample time to accomplish my responsibilities
4. Best class ever.
5. It makes taking classes much more doable.
6. Since I also work full time and am planning a wedding, the hybrid nature worked well for me, permitting me to have more scheduling flexibility.
7. It is good to have classroom structure but online flexibility
8. The course allows work to be done at a pace that makes sense to me.
9. I took two hybrid courses and was ...[unreadable word] work with a full time job.
10. Convenience
11. I am relatively satisfied. I could basically learn at my own pace without it interfering with work.
12. It was very frustrating. My partner in class and I split, putting double work in.
13. I enjoy hybrid courses because I have flexibility to schedule my class work around other things.
14. I felt this class had the right amount of work load. I was able to manage my responsibilities at work, home, and school.
15. It was very useful because I work full time and am taking a graduate class and do not have time to meet 2 or 3 times a week for this class.

16. I prefer the structure of a typical class meeting. It keeps me organized and motivated.
17. It allows me to go to school. There is no other way.
18. Yes, I was able to schedule more classes, internships, move ...[illegible word] to study during the week.
19. The class was well structured and taught. I liked the class time interaction rather than all online.
20. I was very satisfied with class because of the time flexibility that it permitted me.
21. Very satisfied with course.
22. I really enjoyed being able to manage any time within a flexible environment.
23. Easy learning with my own speed, very satisfied.
24. It was very helpful!
25. I enjoyed the hybrid nature of the courses for time management purposes. But for the learning aspect I find being in the classroom easier for learning material difficult to comprehend.
26. Very satisfied.
27. I am very satisfied.
28. Overall satisfaction level very high with hybrid courses.
29. Greatly satisfied; able to manage life, work and home easier.
30. It's the only way I could go to school and work etc.
31. This course allowed me to continue everything as normal.
32. Very satisfied.

33. The course allowed me the ability to learn the material at a leisurely rate and fit well with my schedules.
34. I enjoy hybrid courses as a whole.
35. The hybrid class allowed me to maintain my current responsibilities.
36. Satisfied. Had to adjust a few things.
37. I like being able to choose when I will learn when I don't have time without negative consequences. I don't feel guilty when not learning and I can devote my full attention when learning.
38. It gives me more time to learn while keeping a busy work schedule.
39. The frequent deadlines were harder to manage, but overall flexible.
40. Loved it.
41. Better than expected.
42. The course allows work to be done at a pace that makes sense for me.

Question 2 asked respondents, "Do you perceive that the structure/organization of this hybrid course is tight or loose, well-planned or ill-planned? Explain your answer."

Of the 39 students who responded to this question, six students found the structure to be tight—one of these six students wrote that he/she found the structure to be "somewhat tight," one found it to be "very tight," and the other four found the structure to be "tight." While six students found the course to be tight and well-planned, one student explained by writing "Lots of work load for this class."

Of the 39 students who responded to this question, 8 students specifically pointed out that the structure was “loose,” and one student wrote that the structure was “very loose.” Several of those who characterized the structure as “loose,” indicated that that they liked the loose structure of the course. For example,

- “Loose but this is good.”
- “Loose and well-planned”
- “Loose, and well-planned. Many deadlines are flexible, but the information to cover is well-planned.”
- One student, however, wrote that “[l]oose discussions in the class were difficult due to the nature of opinions of classmates.”

Of the 39 students who responded to this question, 31 wrote that the structure of the course was “well-planned.” One student wrote that the structure was “ill planned for some [parts], well-planned for others.” Another student wrote that “the structure was helpful to outside life but at the same time some aspects felt disorganized.”

No student found the course to be ill-planned.

The following responses were received for this question.

1. Somewhat tight, with weekly objectives; well-planned
2. Loose but with structure helpful to outside life but at the same time some aspects felt disorganized.
3. Well-planned, I learned in it.
4. Loose but this is good.
5. Loose and well-planned

6. Tight—there was a lot of material covered, even w/o the traditional classroom format; well-planned, again, there was a lot to get through and it was all well-integrated with the next unit.
7. Loose, and well-planned. Many deadlines are flexible, but the information to cover is well-planned.
8. It is well-planned, very specific ... [illegible word] online on what must be done.
9. Well-planned. Too little time.
10. The course was difficult due to the amount of time spent with presentations. I missed some of the instruction necessary to guide me on assignments.
11. I believe this course is tightly structured. All the assignments were well-planned out.
12. Well planned—good structure and organization. She made us engaged in reading and writing assignments on a weekly basis. Keeps students engaged.
13. Well planned, specific parts were laid out for every section.
14. Ill planned for some, well-planned for others.
15. Well-planned, everything in the course was planned in the syllabus.
16. I liked the structure and the learning plan was well designed.
17. Very well planned.
18. Loose structure but well planned enabling me to work at my own pace.
19. Well-planned. Always knew when work was due because of the course calendar.
20. Well-planned
21. Loose and well-planned.

22. This class was very well prepared. The lessons were helpful and time was managed perfectly.
23. I found their [sic.] to structure and well planned. We had assignments to complete each week and meet either on-line in Wimba classroom or face to face in the lab to discuss our findings.
24. Well-planned. Always have things to do during class periods.
25. The structure was loose but well-planned allowing for flexibility of assignments and time for questions and concerns.
26. Tight, well planned. I thought this was a relevant, interesting course; one problem/issue with structure is group projects taking too much preeminence over the course—reducing time to work on other assignments and develop more in-depth class dialogue.
27. Very loose, and well-planned. Assignments were loosely due but detailed.
28. Tight. Lots of work load for this class.
29. Well planned
30. Well planned and organized. I liked the structure and variety of ways I am graded.
31. Very tight structure and deadlines to meet class requirements. Very well-planned and organized.
32. Most are well planned.
33. Fairly-well plan. It allowed me to maintain my current responsibilities.
34. Well-planned.
35. Well planned. Everything divided into units. Readings well-selected. Grading distributed evenly across units and based on multiple facets.

36. Well-planned. I was able to incorporate my own thoughts.
37. Well-planned.
38. Tight/well-planned
39. Loose discussions in the class were difficult due to the nature of opinions of classmates.

Question 3 asked respondents, “How do you perceive a hybrid course regarding flexibility of scheduling your work and home responsibilities? Explain your answer.”

Of the 40 students who responded to this question, all 40 responded positively. They all found the hybrid course helpful in being flexible and therefore permitting the scheduling of work and home.

The following responses were received for this question.

1. Very flexible. Allowed me to work late at night
2. Supposed to be excellent with outside responsibilities. For the most part it does.
3. Very easy. I prefer the hybrid to fully online because I like the instructor.
4. Ideal
5. Makes life easier
6. I loved it. As I said above, even though there were deadlines, I still had scheduling flexibility
7. It is okay. I'd like to be able to take fully online courses.
8. Works out well for me. Allows m to merge my own time.
9. It is great and flexibility is there.
10. It was nice time for me to get from ...to school

11. Very good. I like class time combined with online.
12. Flexibility of scheduling was perfect to handle other responsibilities.
13. It's great. I work full time and am taking another class. It affords flexibility and allows me to stay off campus when I need to.
14. While it obviously allows more flexibility, flexibility isn't really a large concern for me.
15. It allows me to work full time and go to school and tend my child.
16. Very good. I wish I took advantage of it earlier.
17. The course worked in well with my work schedule.
18. It allowed me more time for my job and other classes.
19. Easy to have other plans and still get my work done.
20. Really helpful because I can tailor it to my needs.
21. The nature of the course allowed me to make my own schedule to finish homework.
22. Makes life easier.
23. It makes it much easier. I am able to be home with my family while taking my class.
24. I enjoyed in regards to time management, because you could work mine school work around my work schedule and responsibilities.
25. Much to navigate around an online course.
26. I like this type of course much better than one that meets every week at a specific time. It allows for more freedom as my schedule is very weird during this time of the year.

27. Hybrid courses are education moving forward (finally)
28. These classes make responsibilities easier to accomplish.
29. Good to have the flexibility classes like this offer for working students.
30. It allows me to keep all activities and work as normal.
31. Very convenient.
32. I love the flexibility to be able to work around my schedules.
33. Less flexible than online courses and more flexible than courses that only meet
34. They allow enough time to meet my schedule.
35. Hybrid courses are flexible some require a lot more work.
36. Very flexible. Rarely any time management crises. I can always find time for everything.
37. It works well with my busy schedule.
38. Yes, I can plan when to do my work.
39. You are able to work when you have time.
40. I perceive it to be normal with this type of hybrid course. It felt formal.

Question 4 asked the respondents, “How do you perceive the level of your engagement with the course content in a hybrid course, in terms of high level of low level of engagement? Explain your answer. (Consider interaction and collaboration with your peers in class projects)

Thirty-six students responded to this question regarding the level of students’ engagement in the hybrid course. The responses ranged from low to medium/moderate to high. Ten respondents specifically pointed out that their level of engagement was “high”

or responded that they found themselves to be very engaged. Two respondents specifically pointed out that their level of engagement was “low.” The others indicated that their level of engagement was “moderate,” “average,” “fair,” or “adequate.” No student wrote that the level of engagement was inadequate or unsatisfactory. Conversely, almost all students, regardless of the level of their engagement that they perceived in the course, wrote words and phrases that indicated their satisfaction, e.g., “good level,” “proper balance,” and “acceptable.” One student commented that “I believe you are left to learn mostly on your own,” but it was unclear whether the comment was positive or negative.

The following responses were received for this question.

1. My engagement was high. Good level of message board participation by students
2. and instructor
3. Low level in this course but for the most part hybrids offer a proper balance.
4. A little less engaging because the course is more opinionated [sic.] than fact.
5. Average level
6. High. The discussions were particularly interesting, allowing everyone’s thoughts and interpretations to be heard.
7. Sometimes it is easy to distance myself online.
8. There was a lot of collaboration with my group
9. Relatively low, you only engage with your peers.
10. I had interaction with groups in one of three papers.
11. Good
12. Class discussion was consistent and well thought out.

13. Moderate. I feel that I can disengage ..[illegible word], but ... [illegible word] is better considering my time constraints.
14. I believe you are left to learn mostly on your own.
15. Medium. Interaction in discussion board with peers, email with professors.
16. For the design of the teacher. I liked the available time to work with my partner.
17. I feel as if I was not engaged with the students as I would be in a normal class but at the same time I feel like I was able to understand other students' thoughts.
18. High level of interaction due to blogs and discussions with other students.
19. It was helpful to have a discussion board because it allowed the discussion to be open.
20. My engagement was great due to the fact I was free to make my schedule.
21. Average level
22. No response.
23. High level. We meet about have [sic.] the class time face, the other half in Wimba live classroom and we posted any questions, comment, or concerns to the discussion board on Blackboard.
24. I feel that I was very engaged in the work for this course. Online classes were archived so student who were unable to be present could still access the material.
25. I thought there was adequate level of engagement, but not exceptional.
26. Mid-level of involvement. Didn't take up all free time but equally time consuming.
27. High level of engagement.
28. We all had much input and discussion.

29. Moderately engaged. I don't need class engagement so this is good for me. The discussion board was one way of interaction.
30. High level because of discussion boards. I am able to interact with other students.
31. Acceptable.
32. They allow fair level of engagement.
33. High level
34. It varies depending on how busy I am with other things.
35. High level because it worked for me.
36. Probably more than in a large class.
37. I was very engaged.

Question 5 asked respondents, "How do you perceive the relevance of the hybrid course with your future goals? Explain your answer."

Of the 29 students who answered this question, those who found this hybrid course relevant to their future goals indicated its relevance to their educational goals as well as career goals. In both cases, the respondents wrote that hybrid courses enabled them to continue to education while carrying on a busy schedule in employment and family and to graduate faster by taking hybrid courses rather than through traditional college programs. Based on these reasons, or sometimes without giving a specific reason, these respondents found the program relevant to their lives. One respondent wrote that "I think I will see the relevance more as time passes." Another respondent wrote, "I really do not," meaning that he/she found no relevance of this hybrid course to his/her future goals.

The following responses were received for this question.

1. I think I will see the relevance more as time passes
2. Important to have these offered to allow “flex-time learning.”
3. It is a great program!
4. Hybrid course made college possible
5. I can see this format as being very useful and common in the workplace
6. The form of hybrid course works well for my lifestyle.
7. I really do not.
8. I like the hybrid course, but I need more clarity.
9. Very relevant.
10. I will be able to attain my degree faster with hybrid courses.
11. It is an undergrad class, so this one is not very relevant. Neither is the psych aspect. I am from the English Department and have already graduated. But it is interesting nonetheless.
12. It will allow me to further my career.
13. I will continue in this manner as best as I can.
14. Not really that relevant because I am in the sciences but the level of analysis required for the course will help me with any of my future courses.
15. The course does not relate to my future goals or career goals.
16. It is an interesting way to learn.
17. Quite relevant. Because the material covered in the course was directly related to my work, and I plan on taking Hybrid classes in the future and now have a better understanding of what to expect.

18. I do survey work with other students and a lot of what we worked on will transfer to my classes and work.
19. Very relevant.
20. These courses allow me to finish my degree quicker.
21. Not sure yet. Intercultural communications is interesting but not sure how it will help me in my future yet. We will see.
22. It will allow me to complete my degree and not change my work.
23. Hybrid courses allow you to work at your own pace and you have need to be organized and disciplined.
24. The course was an elective and will not help me with my work but I enjoyed the class so it enabled me to learn and teach others about sexuality.
25. They will allow me to work and complete my studies within a timely manner.
26. Hybrid courses allow me to manage work, school, and parenting.
27. It would refer them to anyone with a busy schedule.
28. Very relevant, it is part of my major.
29. It was relevant.

Question 6 asked, “Were you able to incorporate your life experiences in your hybrid course collaborative projects, such as online discussions and face-to-face paper presentations? Explain your answer.”

Of the 34 students who responded to this question, 33 responded affirmatively; they indicated that they were able to incorporate their life experiences in the hybrid course collaborative projects. One respondent wrote that he/she did not understand the question.

1. The following are the responses received for this question.
2. Yes, personal anecdotes; knowledge were encouraged.
3. Online discussion and peer reviews in class were fine.
4. Very much so. I learned more from listening to other people than reading the book
5. Yes, every discussion
6. Yes.
7. Yes. Often examples and discussions called on us to provide personal details.
8. I was able to bring to the table thoughts and expressions from life. Frequently, the discussion and journals[unreadable word], which were experienced based.
9. Yes on the online discussions and even the papers because the content was open enough to talk about experience.
10. Yes, online discussion boards and in my paper.
11. Yes.
12. Yes, I was able to incorporate my life experiences in online discussions.
13. Seeing as it was psych aspect of human sexuality, I would expect that many people felt the same since we all have sexuality. I guess it just depends on the student's willingness to be honest...which I am.
14. Yes, all of my life experiences have helped.
15. In discussion boards we were able to express our thoughts and opinions.
16. Yes we chose our own topics and researched and wrote about them.
17. Yes, almost all the discussions focused on connecting my past experiences with the materials being learned.

18. Yes, we had discussions that dealt with our life experiences.
19. I used examples of my life from my writing.
20. Do not understand the question.
21. Yes.
22. Yes.
23. Yes, I was able and I felt comfortable in discussing life experiences in class and online. The instructor encouraged us to relate our experiences.
24. Yes (no time!)
25. Yes, much so, class topics touch on life exp.
26. Yes. I try to do that with every class to get the best from the class.
27. In group projects, I was able to incorporate them.
28. Yes. Discussion boards. I would usually voice my opinion from my present life experience.
29. Yes I was able to incorporate my life experiences with others.
30. Yes.
31. Yes.
32. Yes. The material relates to every one and we were often asked to draw on personal experiences.
33. Yes, I could not have completed school without the online component.
34. Yes, there was much room for discussion.
35. Yes, everyone has things to say about social problems.

Question 7 asked, "In general, what are your perceptions of learning in a hybrid course?"

Of the 26 responses received for this question, all indicated that their perceptions of learning in a hybrid course were positive. To convey their high level approval of the hybrid course, they used words and phrases such as “love it,” “best course ever,” “fantastic,” “very good.”

1. In this particular course, very good due to high level of interaction by instructor
2. Ability to learn as if traditional but under convenience of flex time.
3. I learned a lot.
4. Best class ever
5. Love it.
6. Informative, interactive, enjoyable.
7. I like them, and look forward to more of them while at RMU.
8. I think it helps you learn just as good, if not better, than conventional classes because of the flexibility.
9. I like the hybrid courses but a lot of homework and I don't like working in groups because of a bad experience.
10. Good. I enjoy hybrid courses.
11. I really like the hybrid course setup.
12. This is my second one. I like them for all the reasons I stated earlier (convenience, flexibility, ...[illegible word], etc.
13. I am sure it is good for some people, but it is not really for me.
14. I expect the same skills ad same learning experiences with that of a a normal class.

15. It is very good. Great on time management working with our own pace, good for practicing responsibility.
16. My initial perceptions were not what I experienced.
17. Very good course for people with busy schedules.
18. Flexible
19. Very effective, and stress free.
20. Love it.
21. Good.
22. I enjoyed it and feel that I received that same type of education as if we were meeting face to face every class period.
23. I liked the course, the mix of students and experiences.
24. Very good (see #31)
25. Fantastic.
26. Love them. Great for us working students.
27. It works very well.
28. I learn well in hybrid courses. I really like the flexibility.
29. I learn a lot of material and can cover a lot of material at my leisure.
30. Acceptable.
31. I think there [sic.] good I enjoyed them.
32. It is more flexible, which can be good or bad depending on a student's interest and self-discipline.
33. I like them.
34. Great design.

35. I like them. Helps me with time.